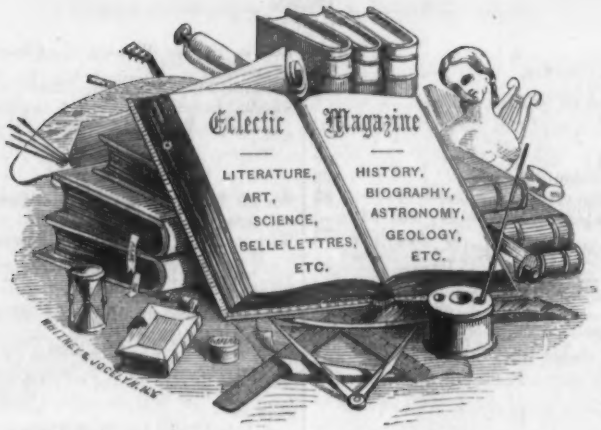

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EARLY ENGLISH MISSIONS AND MISSIONARIES.*

THERE is, as yet, no general history of Christian missions. The theme is now so large and full, that, perhaps, no one man feels himself equal to it. If there have been proposals to supply what the Church would rejoice to possess, a comprehensive, accurate, and faithful narrative of all holy efforts to evangelize the heathen, the result has been somewhat like what has followed certain attempts at cyclopædias of literature, which have issued in mere lists of private libraries, or in descriptive editions of business catalogues. A particular object is put forth under a general name; or the chronicles of a generation are given as the review of an age; or denominational doings are paraded as the actions of Christendom. And, it may be, we have no right to expect any thing else. It remains to be proved whether any man has knowledge, love, and genius enough to write a general history of Christian missions. Some good monographs, however, adorn this department of literature; and he performs no small service who succeeds in throwing a lasting charm over any one scene of missionary zeal, or in immortalizing the records of a single movement towards the overthrow of Paganism. It is not for us to intrude into the prov-

* 1. *The Church Historians of England. Pre-Reformation Series.* London: Seeleys 1853, etc.
2. *Biographia Britannica Literaria. Anglo-Saxon Period.* By THOMAS WRIGHT, M.A. London: J. W. Parker. 1842.
3. *The History and Antiquities of the Anglo-Saxon Church.* By JOHN LINGARD, D.D. London: Dolman. 1845.
4. *The Latin Church during Anglo-Saxon Times.* By HENRY SOAMES, M.A. London: Longman & Co. 1848.
5. *Revolutions in English History.* By ROBERT VAUGHAN, D.D. London: J. W. Parker. 1859.

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ince of the historian; but we are at liberty to indicate those points of interest, or those sections of the historic field, which invite special attention, and which might worthily exercise the ablest pen. Among these England affords, to us at least, the greatest attractions. She is the parent of modern missions. She has cradled and nourished the institutions which have sent forth life and blessing to the ends of the earth. Every thing, therefore, connected with her early Christian life, and first missionary experiments, must be interesting to those who love the Gospel; and especially so to her own children.

England owes her first lesson in Christianity, under God, to Pope Gregory the First. The ancient British Church, whatever it once was, or by whomsoever it was founded, had been scattered as unworthy of its calling; and, when the Pagan Saxons were ready for the truth, its western remnant stood aloof, gloomy in spirit, broken in form, and all but entirely bereft of its power. Its memory is an admonition. How was it that a people like the Britons, partially civilized, yea, to some extent Christianized, and therefore, it may be presumed, advancing rapidly towards intellectual and spiritual maturity, how was it that such a nation came to be invaded by swarms of Pagans, to be crushed, or swept from the soil, and its homes again numbered, for a time, with the abodes of Heathenism? This question will throw us back on the great principle of a supreme moral government—a principle which must be continuously recognized and honored, if the history of the human family is to be understood. The moral government of God has respect to nations and communities and churches, as such. The grand ultimate object of Heaven is the purity and happiness of the whole world. Men are gathered together into families and nations, that they may be more effective agents in promoting the great object. The Supreme Ruler marks out the sphere of each community, and prescribes its work. With nations and communities, as well as individuals, faithfulness to the calls of Providence secures prosperity and honor; while moral corruption, abuse of talents, and neglect of duty, are invariably followed by dishonor, distraction, or national death. So says an oracle, to whose decision we bow: "At what instant I shall shall speak concerning a nation, to pluck up, and to pull down, and to destroy; if that nation against whom I have pronounced turn from their evil, I will repent of what I thought to do unto them. And at what instant I shall speak concerning a nation to build and to plant it; if it do evil in my sight, that it obey not my voice, then I will repent of the good, wherewith I said I would benefit them."

A melancholy illustration of this is furnished in the condition and fate of the Roman empire, or Christendom, during the fifth century. Contemporary writers, men who were among the pious few, tell us with deep feeling of the moral corruption of the professedly Christian world. "You think," cries Salvian, in reply to an infidel objector, "you think there can be no Divine government of human affairs, inasmuch as the professed servants of God obtain no favor at his hands; and that the Church itself is left to its fate. But see what Christians actually are every where; and then ask whether, under the administration of a righteous and holy God, such men can expect any favor. What happens every day under our eye, is rather an evidence of the doctrine of Providence; as it exhibits the Divine displeasure, provoked by the debauchery of the Church itself." And what was thus said of other parts of Europe may be applied in particular to Britain. Gildas was the British Jeremiah of the sixth century. By turns he exposes the enormities, and weeps over the desolations, of his people, "If," says he, "God's peculiar people, his first-begotten Israel, were not spared when they deviated from the right path, what will he do to the darkness of this our age? in which, besides all the aggravated sins which it has in common with all the wicked of the world, is found an innate, fixed, and incurable spirit of inconstancy and foolishness. Britain has kings, but they are tyrants; Britain has priests, but they are impudent; she has clerks, but they are deceitful raveners; and pastors, but they are rather wolves prepared for the slaughter of souls. There is every vice to which human nature is liable. Meanwhile, God, still willing to purify us, sends a rumor of foes, who are rapidly approaching to scourge and destroy the land." * The venerable Bede also declares, that "all the bonds of sincerity and justice were so entirely

* Sect. 1, 21, 22, 27, 66.

broken, that there was not only no trace of them remaining, but few persons seemed to be aware that such virtues had ever existed." "To those sins which are not to be described, says he, "they added this, that they never preached the faith to the Saxons, or English, who dwelt among them."* All this is confirmed by the fact, that when the celebrated Germanus, who came over from Gaul to check the spread of Pelagianism in the British Church, had spent some time in catechizing and instructing the troops which were collected to oppose the Saxons, *he baptized the majority of the whole force.* We may infer that, though the British Church had existed above two hundred years, one half of the population were still either idolaters or persons who shrank from that baptism which would place them under the restraints of a Christian profession.

It would appear, then, that the Britons had enjoyed a day of trial, but that they were found faithless. Roman arms had probably opened the way of the Gospel; and pious officials and soldiers, or, it may be, even apostles, had brought the leaven of Christianity to this island. The same instrument who broke up the Jewish temple, and scattered the faithless Jews, had previously subdued Britain, and laid it out as a fair field for the cultivation of that religion which Jerusalem rejected. Under the mild government of Agricola, the Britons were to some extent rescued from barbarism, and prepared to listen with calmness to the doctrines of truth. That truth was received; and had it been faithfully entertained, and steadily exemplified, it might have saved them; but, alas! they proved that their countryman, Gildas, spoke the truth when he remarked that they were "ever desirous of hearing something new, but remained constant to nothing long." They were, perhaps, enervated rather than improved under Roman sway; and suffered themselves at last to become the sport of circumstances. Their country had probably given birth to the mother and son who were the first to range imperial power on the side of the Church; and, what was better, they had enjoyed the labors of such Christians as Ninian, Patrick, Fastidius, Germanus, and Lupus. But, in common with their fellow-subjects on the continent, they had lost their social vigor, their political health, and, with a few eminent exceptions, their religious purity; and were now to give place to the people who were at once a scourge and a blessing. The Teutons, at the time of their descent on this country, were as yet heathen; but they were the chosen instruments of Heaven in renovating and reörganizing the western world, and in preparing Christendom for her benevolent mission.

"To the farthest verge
Of the green earth."

But who first administered to them the truth which touched, and purified, and consecrated their minds and hearts to the nobler service of Him by whose providence they had, so far, been trained? We say again, it was Gregory the Great. Let no Protestant be alarmed; his religion is not in danger. Protestanism must never be blind to truth; nor do its interests ever require us to be unfair. Gregory was a great man. His name is one of the landmarks of history; and his character, in grand outline, will ever remain the most distinguished honor of his generation. He was a man for his times. Shut up in Rome, with savage hordes at the gates, and pestilence, famine, and flood within — with heresy in the provinces, and the care of every department weighing heavily upon him at home—he he never 'bated jot of heart or hope,' but met every demand in turn; always ready, always prompt, always decided, and generally successful. He was modest and simple in his dress; plain in his household; severe to himself, but ceaselessly kind to others. He was at once the domestic economist, the vigilant land-owner, the municipal overseer. Now, he is the watchful diplomatist; then the soldier, superintending his own commissariat, planning his defences, and directing his troops. Now in the pulpit, passionately rousing his flock to spiritual life and action; in the cloisters, keeping his monks to their discipline; in his closet, writing morals on the Book of Job, or keeping up a wide correspondence with kings and queens, ecclesiastics and scholars. Then, in the choir, reforming the Church Service, and giving that musical impulse to the Christian world which will be felt as long as the Gregorian chant continues to charm a human soul. Indeed, he was every

* *Hist.*, b. i., c. 22.

thing that his Church and his times required. If to us he seems over-credulous, he was only conformed to the fashion of his day; and it is a remarkable fact, that the same reproach, if reproach it be, has been cast upon almost every man who has been a leader of his generation. He appears in one or two cases to have been guilty of flattering those who ought to have been reproved; as when, in his correspondence with the profligate but relic-loving Brunehaut, he declared the French to be happier than other nations in the character of their sovereign; or when he made heaven and earth rejoice at the accession of the brutal Phocas. In this he set an example of inconsistency which has been too frequently copied by those whose zeal for their favorite object blinds them to the faults of those who help them to success. There is no evidence to sustain the report, that he headed a crusade against the classic remains of his own city. Even that most subtle of all slanderers, Gibbon, expresses a doubt in his favor, when he would have been only too glad to find some reason for a sneer. Gregory was suspicious of pagan literature; but it was for the same reason which would lead a modern pastor to guard his flock against the pernicious influence of graceless novelists.* His cautioning half-instructed Christians against pagan writings was, at all events, perfectly consistent.

The sight of some young Saxon slaves in the Roman market probably touched his heart, and suggested the first thought of a mission to England. It is interesting to observe the circumstances under which some of the most happy missions of the Christian Church took their rise. And, at this point, the history of the early and later missions affords some remarkable parallels. Gregory looked upon some poor Saxon slaves, and his mind conceived the conversion of the land from which they came. A few pious men of Basle, standing at the the gates of their native city, in the days of the first Napoleon, saw the pagan ranks of Kalmuks and Tartars, under Russian colors, marching past to the seige of Huningen; and were led by a simultaneous thought to enter into a solemn vow, that if God spared their homes from the impending desolation, they would form a seminary for training missionaries to the uninstructed hordes which had excited their pity. And thus sprang up an association which is now taking a noble part, not only in the conversion of those who were the first objects of its care, but of India, and in the vernacular instruction of Western Africa. Gregory would fain have entered on the Saxon Mission himself, but he was too valuable a man for Rome to lose. When raised to the papal chair, amidst all his labors and cares, his favorite scheme was not forgotten. His first purpose was to procure young natives from the slave-market, and have them trained as evangelists to their countrymen. This process, however, was too slow for his impatient zeal. He fell back on his monks, selected a missionary band of nearly forty, and in the year 596 sent them, with many exhortations and blessings, to the coast of Kent. No one can read his epistle to the consecrated missionaries without feeling that the man's heart was set upon this work, and that he entered on it in simplicity and godly sincerity. "Let not the toil of the journey," says he, "nor the tongues of evil-speaking men deter you; but with all possible earnestness and zeal, perform that which, by God's direction, you have undertaken; being assured, that much labor is followed by greater eternal reward. . . . . May God Almighty protect you with His grace; and grant that I may in the heavenly country see the fruits of your labor; inasmuch as, though I cannot toil with you, I may partake in the joy of the reward, because I am willing to labor."

Not without reason Gregory warned them against "the tongues of evil speaking men." On their way through Gaul, they heard the dangers of their mission magnified, until their courage failed, and Augustine, their leader, went back to pray that they might be recalled. This weakness has been spoken of as a proof that true Christian zeal could never have moved their hearts. But the inference is not fair; the annals of modern Missions might furnish parallels from among those whose

* Perhaps if he had lived in our times, and heard an unqualified recommendation of such a periodical as the *London Journal*, he would have vigorously acted the Pope, even though that apologist were Lord Brougham himself. And, by the by, for a man whose word is so much like law, to appear as the public advocate of 'social science,' and, in that character, to speak favorably of pages which, to speak gently of them, tend to debauch the intellect of the young, is, at least, to be guilty of an outrage on propriety and good taste.

evangelical zeal and purity no man doubts. Augustine and his companions landed in Kent, probably in the autumn of 596. The story of his reception is well known. His way had been prepared by female piety in the royal household. The queen had held fast her Christianity amidst the temptations of a pagan court. Augustine and his friends gained a hearing, and opened their message. Their difficulties were not very different from those which have many times since beset missionaries who carried the same truth to "the regions beyond." This is remarkably shown in the correspondence between Augustine and his superior at Rome. The customs, manners, tastes, and prejudices of the people involved him in questions which he calls on Gregory to help him in solving; at least he modestly appeals to the judgment of his ecclesiastical father. Hume, and men of his school, have thought that they had found in the discussion between Augustine and Gregory ample reason for a laugh at "questions and replies" which they pronounce "indecent" or "ridiculous;" and which, in their wisdom, they thought could occur to none but those who had "sympathy of manners" with "the ignorant and barbarous Saxons." But the modern missionary, who has come into close contact with heathenism in other climes, may find a striking similarity between the correspondence which was once maintained between Canterbury and Rome, and that which has sometimes passed between Southern Islands or African coasts, and central Mission Boards in London or America. Like questions turn up; corresponding difficulties occur; and it is well if all modern advisers prove themselves as clear-sighted, judicious, forbearing, and just, as Gregory appears. Whatever else that pope was, he was consistent. In the spirit of his times, he was disposed to extend the sanction of the Church as far as possible to pagan fashions. Perhaps he went too far in that direction when he laid the foundation of what grew up into parish feasts. But he allowed nothing that was plainly condemned by Christianity as impure. (It has been reserved for a colonial and missionary dignitary of these modern days, to advocate the continuance of polygamy in the infant churches of Africa!) Gregory, however, sternly required obedience to the New-Testament laws of holy matrimony; and enforced chastity alike on princes and people. There could have been no serious compromise of Christian principle or duty, like that which the Jesuit missionaries of a later day were guilty of, in attempting the conversion of the Hindoos. They determined to become indeed "all things to all men," for the accomplishment of their object; and so far did they carry this policy, that, in the charges eventually lodged against them before the pope, it was declared to be doubtful whether, by sparing idolatry, and tolerating it among their proselytes, they had not themselves become converts to Hindooism, instead of making the Hindoos converts to the Christian religion. That this was far from being the policy of Augustine and his companions seems plain, from the fact that the permanent results of their labors have rendered it exceedingly difficult, if not impossible, to gain a satisfactory view of the mythology and creed of old Saxon heathendom. It is only by the collation of minute and isolated facts, preserved, perhaps, in some popular superstition, legends, or even nursery tales, that we gather the few dim notions we possess. Both the missionaries and those who chronicled their labors, seem to have made it the business of their lives to destroy the remembrance of former things; and to avoid every thing that might recall the past, or remind the converts of the creed or practices of their forefathers. The consecration of heathen temples and places of popular resort to the service of the Christian Church would scarcely have been effected, without allowing some broken elements of the old system to lurk for a time in the habits and belief of the people. Indeed, some of them may be found among us still. But, after all, the work of those first evangelists will bear comparison with any case of island conversion that comes nearest to a parallel in the history of modern missions. Take New Zealand, for instance. When Bishop Selwyn says, that though it is only forty years ago since the first missionary landed there, yet now "the whole nation, as far as he could judge, comparing man with man, are as worthy of the name Christian as are our people of England,"—the fact might possibly be taken as evidence of the purer and more earnest zeal of modern missionaries; but it is not difficult to see that the process through which the people of this country passed under the labors of Augustine and his followers, is the

same as that which is now going on in New Zealand. "The people," says a recent witness, "are nominally Christians, but retain many of the superstitions and habits of their former state. It is rare to see a house at all superior to the huts they built fifty years ago. Some of them wear the mat; many have substituted the blanket; but a considerable number dress well in the English costume. When we see them squatting in the streets, or grouping in their huts, or freely lounging together in the sun, without respect to rank or sex, we are disappointed; for they look to us more like savages than Christians. Yet nearly the whole of them can read, write, and calculate; many keep the Sabbath holy, read the Scriptures, and have family worship; and some are highly honorable and conscientious in commercial transactions. All the worst traits of heathenism have disappeared, and now the people are learning the first principles of the doctrine of Christ. When they formerly abandoned the name and profession of heathens, and adopted Christianity, all Christendom heard of it, and rejoiced over the victory; but as great a work is still to be done, in retaining successive generations on the vantage ground, and, in the face of vast difficulties, leading them on to maturity."*

Turning from this to our own land, and looking at the manner in which Christianity in England bore the tests to which it has been subjected by political revolutions, growing wealth, and, above all, by religious corruption and ecclesiastical tyranny, the foundations must have been nobly laid, and the work of the first builders must have been well done. The groundwork indeed was laid in Divine truth, and the work was done under the Holy Spirit's sanction and blessing. As yet, those distinctive dogmas which have become essential to the Latin Church of later times, had not taken a position to eclipse the great leading doctrines of saving truth. The teaching of the missionaries would, of course, fairly represent the views and feelings of their nation; and Gregory, though not entirely free from perverted notions on some points, was, in doctrinal views and ecclesiastical principles, much nearer to what is called Protestantism than to the standard of the modern Romish Church. His ear was too open to stories of the supernatural and miraculous; although perhaps he can not be fairly judged by an age so mechanical and hard, so material and secular as ours. The question of alleged miracles in the Christian Church of post-apostolic times, is one of great difficulty. We can easily believe that such men as Gregory were too ready to credit marvelous tales, and to chronicle reports which, if properly sifted, would have turned out to be mere exaggerations of some remarkable coïncidences; or, that some striking and impressive manifestations of Divine Providence on behalf of the infant Church, or its missionary work, might, in the course of circulating talk, become distinguished by terms which, understood figuratively at first, have at length helped to place them before posterity in the character of miracles. The recently published volumes on *Fiji and the Fijians* may furnish an illustration. There are statements as to the salvation of persecuted converts from imminent peril by the sudden and unlooked-for destruction of their persecutors, which, if brought to the next generation of Fijians by oral tradition, might easily be mistaken for miraculous vindications of Christian truth. At the same time, from the testimony of such men as Bede, and from the memorials of many of the early missionaries themselves, it is clear that both Gregory and those whom he employed were ruled by the conviction, that the Divine government could not be upheld over human minds without occasional interference by miracle; and that such interference might be expected at the first introduction of the Gospel among heathen people. And, after all, it is more easy to believe that a merciful God would arrest the attention of unbelievers, and force the truth of the Gospel on their notice, by such interferences, than to admit that men of pure sincerity and holy purpose could be victims of self-deception, and the means of deceiving those whom they so earnestly wished to save. That such men intended to deceive is beyond the faith of any pretender to calm thought or good feeling. It may be easily conceived that the extraordinary facts connected with modern revivals would, under some circumstances, be reported as miracles. The outer man, for instance, is prostrated in a manner which many have found unaccountable; but from that prostration the entire man has risen with evidence of a moral change

* *Wesleyan Missionary Notices*, November, 1859.

which none can deny, and which most admire. But may not God permit truth to be so discovered as to overwhelm for a time the powers of human nature? not to show that such affections of our physical nature are necessary to a religious change, but to call the attention of a skeptical world to the fact that there is a Divine Spirit without whom men can not be rectified and hallowed, and, at the same time to awaken the Church to the true meaning of its creed, when it says, "I believe in the Holy Ghost." As society becomes cool and hard under the sway of mere intellect, spiritual religion will be treated with neglect, if not with scorn. Its claims will be politely overlooked, or its advocates borne with as the subjects of a defective training; but when multitudes suddenly take a religious turn under the pressure of convictions wrought without any visible agency, men are obliged, in spite of themselves, to acknowledge a Divine power, and to pay homage to the grace of God. Who cares for what a few people say about their inward experience? but who can be thoughtless when his neighbors are struck down as by an unseen arm? Who but must be serious when he sees them rise up to act on new principles, from new motives, and with an aim and purpose altogether different from that of their former life?

But to return to Gregory. It would appear that with all the credulity with which some have charged him, he was more cautious than many of his contemporaries; and that he was prepared judiciously and scripturally to guard his clergy against extremes. Who does not like to read, again and again, his calm, beautiful, and affectionate letter to Augustine, written when he was rejoicing in the unexpected and marvelous changes which were taking place in the scene of his mission? "I know, most loving brother," says the pope, "that Almighty God, by means of your affection, shows great miracles in the nation which he has chosen. Wherefore it is necessary that you rejoice with fear, and tremble whilst you rejoice, on account of the same heavenly gift: namely, that you may rejoice because the souls of the English are by outward miracles drawn to inward grace; but that you fear, lest, amidst the wonders that are wrought, the weak mind may be puffed up in its own presumption, and, as it is eternally raised to honor, it may thence inwardly fall by vain glory. For we must call to mind, that when the disciples returned with joy after preaching, and said to their heavenly Master, 'Lord, in thy name, even the devils are subject to us,' they were presently told, 'Do not rejoice on this account, but rather rejoice for that your names are written in heaven.' For they placed their thoughts on private and temporal joys, when they rejoiced in miracles; but they are recalled from the private to the public, and from the temporal to the eternal joy, when it is said to them, 'Rejoice that your names are written in heaven.' For all the elect do not work miracles, and yet the names of all are written in heaven. For those who are disciples of the truth ought not to rejoice, save for that good thing which all enjoy as well as they, and in which they have no faith of private enjoyment." The writer of this epistle did not, on some points, keep so near to our standard of orthodoxy as we should think necessary; but on most subjects his way of thinking was strongly akin to our own. He was, perhaps, the last of the popes with whose spirit it would seem possible for us to fraternize. His unquestioning faith in the significance of dreams and visions disposed him to entertain the question of a purgatory—evidently against his better judgment, when influenced by the light of inspired truth. He was willing to admit the use of pictures as teachers of scriptural facts, but not as objects of adoration; while he attached some value to relics, though he never idolized them. At the same time, there was no one immaculate, in his estimation, but "the Son of Man." He set up no claim to supremacy as a bishop; nor was he above concession to the opinions and practices of those who differed from him, when the glory of his Master and the success of truth called for it. He believed the Church to be composed of those who were "anointed and sanctified by the Spirit of Christ." He enforced no confession but the confession of a penitent sinner to his God; preached no sacrifice but that which the Lord Jesus offered "once for all;" and proclaimed no salvation, but salvation by "faith in our Lord Jesus Christ." Indeed, his "Rock" was not Peter, but Christ; for, "By rock," says he, "is meant Christ; the foundation signifieth Christ." Christ's word, with him, was the only standard of faith

and practice: "No doctrine may be thought necessary to be believed," he remarks, "but that which is grounded upon Scripture; and whosoever will avouch any divine truth, must build his speech upon this foundation." Hence, he exhorts the laity to study the Scriptures, that "they may learn the will of God, because," he continues, "Holy Scripture is the epistle of God unto his creatures. It is a flowing river in which the lamb may wade, or the elephant swim."*

A mission begun under the influence of so much truth, could not be without gracious fruit. There were some things in Augustine's mode of opening his message which to us may appear beneath the dignity of those who bear the commission of the Gospel; as when he and his companions approached the place where King Ethelbert of Kent had appointed an interview, in a kind of procession, with a silver cross and a picture of Christ borne before them, chanting a litany as they moved, and in alternate choirs singing their prayers for the conversion of the heathen. Their chant and litany, and even indeed their cross, will be borne with, perhaps, better than their picture; but if such things seem childish to us, some generation of the future, wiser and more spiritual than ourselves, may probably read with wonder the record of our strife about the color of a preacher's vestment, and may find it difficult to detect the earnest piety of those who substituted the religious novel for the Word of God, replenished their Church coffers with the profits of popular concerts, and regulated the orthodox pitch of their devotion by a musical key. Truth, however, always accomplishes something, though associated with human infirmity, and even when partially mixed with error. Sincere efforts to Christianize men never entirely fail. And when the results of one evangelizing movement seem to be dying out, it is only to open the way for something better. As geological deposits have followed each other through the course of former ages to compose this remarkably-constructed island, thus preparing and adapting it as the scene of civilization, and a great center of moral power—so, dispensation after dispensation of truth comes to its people, each in succession more pure and rich, until England shall become a mature example of unblameable godliness and unmixed charity. Nor should any religious age glory over a former day, as if all its advantages were owing to itself. That which now is, owes a great deal to that which went before it. And, indeed, the relations of ages and generations, and their dependence on one another, in the economy of Providence, must be held to be sacred. As "the eye can not say to the hand, I have no need of thee; nor again the head to the feet, I have no need of you;" so, an age of more intellectual piety should not despise the one which, though less enlightened, had its distinctive power. Nor should the generation whose advantages are more complete, think meanly of the days when the ground-work of those advantages was laid.

Reflections have sometimes been cast on the memory of Augustine, the leader of the first English missionaries, on account of his mode of treating the remnant of the British or Welsh Church. He had been made bishop; and, among other instructions from Gregory, he had been directed to take the superintendence, not only over all the bishops in Saxon England, but over those who might remain among the Britons of the West. "To you, my brother," says the official letter, "shall, by the authority of our God and Lord Jesus Christ, be subject not only those bishops you shall ordain, and those that shall be ordained by the Bishop of York, but also all the priests in Britain; to the end that from the mouth and life of your holiness they may learn the rule of believing rightly, and living holily; and so fulfilling their office in faith and good conduct, they may, when it shall please the Lord, attain the heavenly kingdom." Gregory never invaded the just rights of others; and must have found a reason for this arrangement, partly in the degenerate character of the British remnant, as described by Gildas, and partly in the fact, that the British Church had been in communion with the churches on the Continent, and with them had acknowledged the superiority of Rome, and had shared in its pastoral care and oversight. Augustine sought an interview with the British clergy on the banks of the Severn. All he asked was, their fellowship with himself, a reasonable

* The passages which express his opinions on all these points have been culled and arranged by Morton in his *Catholic Appeal*, 1609.

conformity to the usages of the continental Church, and their aid in his missionary work. They refused. There was a second meeting. He reviewed all the points of difference between them, and he reduced his proposals to three; namely, that they should consent to show their friendliness by keeping the festival of Easter at the same time with the Saxon churches, that they should observe the same form of baptism, and especially that they should join him in his missionary efforts to convert the Saxon tribes. They were still sullen; and Augustine, kindling at their obstinacy, broke up the conference by saying, "Know then, that if you will not assist me in pointing out to the idolaters the way of life, they by the just judgment of God will prove to you the ministers of death." The missionary may possibly have grown warm under his disappointment; but he felt that his reasonable propositions had been blindly scorned. The secret of the whole turned out to be, that Augustine had unwittingly violated their notions of etiquette. A pilgrim whom they had consulted had taught them to reject him if he proved otherwise than lowly; and the testing sign of the requisite meekness was to be his rising at their approach. Unfortunately Augustine kept his seat. Perhaps he felt his dignity; he had enough goodness, however, we think, to sacrifice a point of ecclesiastical fashion, had he known that the whole affair, important as it was, had been secretly made to hinge on this trifle. The truth and the salvation of souls were made subservient to a petty feeling of race, or the pride of a clan; and the fact reminds us that not far from the scene of this unsuccessful negotiation a Saxon judge has, within our own times, found a Welsh jury determined not to give a verdict against a Welsh criminal. Such unworthy feelings of nationality should have the frown of the intelligent world.

We can scarcely wonder at Augustine's final warning. It was natural enough, and seemed all but prophetic. The missionary cannot be fairly charged with the crime of exciting a Saxon chief to shed the blood of the obstinate monks, who were afterwards slain so fearfully by Edelfrid, the pagan king of Northumbria; for Augustine had passed to another world eight years at least before that massacre at the battle of Chester. His successor in the Kentish mission was discouraged, for a time, by the fluctuations of the court; while another of the first missionary band, Mellitus, who had opened the mission in the capital of Essex, was so disheartened by the continued rudeness and violence of a half-instructed prince, that he retired for a time to Gaul with his companion Justus. The difficulties which beset the early movements of these first evangelists have found but scanty record; those, however, who are happy enough to study these records in connection with modern missionary literature will scarcely wonder at the allusions to occasional depression and even temporary abandonment of the field. The struggles between the prejudices and the better judgment, between the passions and the consciences, of heathen princes and chiefs, together with the consequent doubt and uncertainty on the part of their people—are striking similar in all ages of the missionary enterprise. And, indeed, many of the foreign scenes which are unfolded in the missionary chronicles of our own times, appear strangely to match those which had been acted among our own ancestors, when this island was a mission station. The perplexities for instance which surrounded Mellitus, when subject to the capricious tempers of his departed patron's pagan sons, may be better understood in the light which the history of some of the South Sea or African missions shed upon them. When Mellitus fled from his station into Kent, to consult his fellow-laborers—and, as Bede tells us, it was unanimously agreed that it was better for them all to leave the ground than to continue without fruit among the half-awakened and still willful barbarians — the principle of action was the same as in a case reported by a missionary society in 1827. "We had expressed a hope," it is said, "that the New-Zealand Mission, notwithstanding the many counteracting causes which opposed themselves to its establishment, would ultimately exhibit the triumphs of Christianity and civilization. These pleasing anticipations, it is our painful duty to record, have not been realized. Commotions among the tribes and the conduct of contending chiefs have, for the present at least, driven the missionaries from the station, and obliged them to withdraw from the island."*

Nor will a student of our materials for

* See *Wesleyan Missionary Report*, 1827.

a history of early missions fail to see that those who first brought the Gospel to the Anglo-Saxon tribes in England had to brave precisely the same spirit as recently manifested itself in opposition to the Gospel on the slave coast; and that the king of Dahomey merely spoke out again what had often been so expressed or made evident before, when he met the advances of the missionary by saying: "I know that there is one true and living God, and that He forbids killing, selling, and the worship of Fetish; but as I have been trained in these things, I can not leave them off. I know that if my people be allowed to hear the Word of God, they will be changed and become cowards, and they will not serve the Fetish with me, neither will they go to war. If I allow all the children of my people to attend the Christian school, they will be entirely converted to that religion; therefore I can not do so."* Such heathenism, however, cannot long hold the Gospel in check. It will not do so in Africa; it has not in Australasia; it did not in pagan Saxondom. Laurentius lived to see the truth victorious in Kent, and Mellitus and Justus returned to witness the firm establishment of Christianity on the field of their labor and conflict. Paulinus, another of Augustine's companions, was the first to break missionary ground in Northumbria, under the protection of the royal bride, whom he accompanied from Kent. Some of Augustine's disciples had gone into East Anglia on the invitation of its monarch Redwald, and had baptized him into the Christian faith. His brother Sigebert, however, was a more sincere and earnest Christian; and when he came into power, after being for some time on exile in Gaul, he opened his kingdom to Felix, a Burgundian bishop, who entered on his mission under the sanction of Honorius of Canterbury; and, after the example of the mother station, established a school in connection with the Church. About the same time, (634,) Birinus, under the direction of the Pope, found his way to the southern coast, and opened the tidings of salvation to the fierce tribes of Wessex. Aided by the presence of the Northumbrian prince, who had come to seek the hand of a West Saxon princess, he succeeded in gaining the king, and with him many of his subjects, as the first fruits of his ministry and the nucleus of a Christian Church. The zeal of northern Christian princes opened the way for others into Mercia; while Sussex, after resisting for a long time, every other appeal, yielded to the address and zeal of the traveled and accomplished Wilfrid of Ripon. Like many others who have been called to positions of wide influence, or to the accomplishment of some great work in the Christian Church, this remarkable person gave tokens of his native power in early life; and by a concurrence of circumstances was made to pass through a great variety of experiences at the beginning of his course. This providential training prepared him for holding a fixed purpose through and amidst all changes, and for making all events and all times serve him in the pursuit of his object. While yet a youth, he could carry arms, or gracefully serve the mead cup in the banquet hall, or wait agreeably on the person of his queen. At the same time he was not unprepared for the crosses and the self-denials of a religious life. In his fourteenth year he was marked out as best qualified for waiting on an aged courtier who had resolved to find a pious retreat at Lindisfarne. Alcuin's description of that island would show that during his stay there outward things helped to teach him how to "endure hardness as a good soldier of Jesus Christ."

It is interesting to trace the influence of Wilfred's scriptural studies in the formation of his missionary character. God's Word was his text-book; and, like many of his contemporaries, he enjoyed companionship with the Psalter and the Gospels, until they seemed to become a part of himself. He entered the priesthood at Ripon, and became at length the Archbishop of York. His seat, however, was an uneasy one. His consistency was too rigid for the times. Nor was it long before he knew what it was to be "in journeys often, in perils of waters, in perils of robbers, in perils by his own countrymen, in perils by the heathen, in perils in the city, in perils in the wilderness, in perils in the sea, in perils among false brethren." His strong attachment to the ecclesiastical polity of Rome brought on him a series of persecutions; driven before which, he fled into the yet barbarous kingdom of Sussex, where he secured the friendship of the chief, who

* See *Wesleyan Missionary Report*, 1860.

gave him the island Selsey with two hundred and fifty slaves. These were his first converts. He gave them their liberty on the day of their baptism. Within the space of five years, he saw Christian worship firmly established in Sussex. His attachment to Rome was certainly too strong to suit our notions; but we can not be blind to the fact, that the Anglo-Saxons owed to him the final establishment of Christianity throughout the island. It was he who drew the contending kingdoms within the circle of his powerful influence, and joined them into one church; thus to a great extent bringing about that universal peace and unity which Bede celebrates at the conclusion of his history. "The Picts," says he, "at this time have a treaty of peace with the nation of the Angles, and rejoice in being united the with universal Church. The Scots that inhabit Britain, satisfied with their own territories, meditate no plots or conspiracies against the nations of the Angles. The Britons, though they, for the most part, through domestic hatred, are adverse to the nation of the Angles, and from wicked custom, oppose the appointed Easter of the whole Catholic Church; yet, from both the Divine and human power firmly withstanding them, they can in no way prevail as they desire; for though in part they are their own masters, yet partly they are also brought under subjection to the English." Such, indeed, was "the peaceable and calm disposition of the times," that both among the higher and lower classes military pursuits were yielding their popularity in favor of a religious life. "What will be the end thereof," he remarks, "the next age will show. This is for the present the state of all Britain; in the year since the coming of the Angles into Britain about two hundred and eighty-five, but in the seven hundred and thirty-first year of the incarnation of our Lord; in whose reign may the earth ever rejoice; may Britain exult in the profession of His faith; and may many islands be glad, and confess to the memory of his holiness."

The conversion of the Anglo-Saxons from Paganism to Christianity was thus completed in the course of one century. The work was begun by Gregory the Great; and was carried on by his missionaries and their disciples, aided in some districts by Scottish or rather Irish missionaries from the Island of Iona. These co-workers came from the monastery which, it is said, was found by the celebrated Columba, a monk from the abbey of Bangor, on the coast Ulster. It is interesting to observe, in passing, that the Blessed Spirit under whose ministrations all that is vital in Christianity is begotten and cherished, continues to distinguish the venerable scene which once gave birth to so many examples of true heavenliness and zeal. Not that the style of piety which Bangor cultivated was as active and practical as we think the will of Christ and the welfare of mankind require; for there was too much of the mystic in some of Ireland's best saints. And it may be devoutly hoped, that the modern awakening of Ulster may issue in more stirring zeal and larger missionary action than did the earlier spiritual movements of that province. If the monastic establishment of Iona was founded by Columba, it must have been soon after the year five hundred and sixty, when he was on his way to Gaul, with his twelve companions, in search of the deepest possible seclusion from the world. His disciples on the Holy Island were stirred up to some effort by the spirited movement of the missionaries from Rome; but it does not appear that there was much in the example of Columba himself to awaken true missionary zeal. The life which he led in Gaul was, as Mr. Wright remarks, "entirely agreeable with the contemplative and anchoretic character of the Irish and British Churches; it was innocent, perhaps, but it can not be said that it was equally useful." Bede's reflection on the British Christians, as to their lack of action, charity, and missionary zeal, was not unmerited. Iona remains a remarkable monument of their over-contemplative character. It seems as if it had been marked rather as a place for the dead, a receptacle for noble and saintly dust, than as a center of active spiritual life, sending out blessing to the world. It is now a scene of resort, where the curious and the devout wander over the accumulated dust of kings and chiefs, mitred abbots and nameless monks; a place of graves, from which hundreds of monumental inscriptions have been collected, and scattered, and lost, and where the carved and inscribed memorials are unnumbered still. With all this, the traditional recollections of the saintly recluses

seem almost entirely to have faded from the minds of the people; while the legends of daring chiefs and princely warriors remain just as fresh as ever. We may accept Scott's beautiful mode of accounting for the fact. While "the life of the chieftain was a mountain-torrent thundering over rock and precipice, which, less deep and profound in itself, leaves on the minds of the terrified spectators those deep impressions of awe and wonder, which are most readily handed down to posterity; the quiet, slow, and uniform life of those recluse beings glided on, it may be, like a dark and silent stream, fed from unknown recources, and vanishing from the eye, without leaving any marked trace of its course."

The Irish agents from Iona seem to have been brought into the English field by princely influence. Oswald and Eanfrid of Northumbria had been obliged to to hide themselves from the jealousy of their reigning kinsman Edwin; and had spent the time of their exile in receiving lessons on Christianity from the monks of the Sacred Island. On Oswald's restoration to power, he acknowledged his obligation to the Christian religion, and sent to his old hiding-place for missionaries to instruct his people. "Corman was sent," says the learned Lingard, "a monk of severe and unbending temper; who, disgusted with the ignorance and barbarism of the Saxons, speedily returned in despair to his monastery. While he described to the monks the difficulties and dangers of the mission, 'Brother,' exclaimed a voice, 'the fault is yours. You exacted from the barbarians more than their weakness could bear. You should first have stooped to their ignorance, and then have raised their minds to the sublime maxims of the Gospel.' This sensible rebuke turned every eye upon the speaker, a private monk of the name of Aiden; he was selected to be the apostle of Northumbria; and the issue of his labors justified the wisdom of the choice." Paulinus had opened the way, setting up his cross in the vale of Dewsbury, and fixing his center of operations at York. But a bloody invasion of the kingdom, after the death of Edwin, had scattered the first fruits of his labors. What was begun by him, however, was carried on and established by Aiden and his collegues.

It has been objected to these first missionaries, both Latin and Irish, that they began with courts and princes, rather than with the people. The history of modern missions, however, will show that this by no means reflects dishonor on their Christian character or missionary zeal. There is a striking similarity, in this respect, between their work and that of the most devoted and heroic men who, in later times, have evangelized savage and idolatrous tribes. The purest zeal has harmonized with wisdom in prompting an appeal to the chief, in order to more advantageous attempts on the clan. And, among the cases which illustrate the correctness and happy results of this plan, there is one which always strikes us as an interesting parallel to one of the most beautiful incidents in the history of the first mission to this island. About forty years ago, and English missionary* stood in one of the wild valleys of Africa, where a quiet Christian village, with its church and school now stands as a memorial of successful labors; and surrounded by the pagan chief and his councillors, he opened to them the news of salvation by Christ; and inquired whether they would receive his message, and submit to the teaching of the Gospel. After consultation it was said in reply, "We never before heard these things about the soul. We have had doubts and fears. Uneasy feelings and sorrow have come. But we did not know where to find rest. Before you spoke, we were like people in an egg-shell. It was dark. We could see nothing. We could understand nothing. There was the sky. There were the mountains. There were lilies. But we did not who made them. Nor could we tell where we came from, or where we were going. Stay and teach us, and we will hearken."

* Barnabas Shaw.

[TO BE CONCLUDED.]

From the Edinburgh Review.

MOTLEY'S HISTORY OF THE UNITED NETHERLANDS.*

In the mean time, the preparations for the invasion of England were slowly being completed. This was the chief aspiration of the whole Catholic world—the dethronement or death of the Jezebel of England, and the consequent extinction of heresy in Europe. To join in producing these happy results, Henry III. had made almost suppliant offers to Philip. The pope had prayed to be able to do the same thing, and offered a million of crowns in subsidy. Philip, however, kept his own counsel, and put off every body with delusive replies. He accepted the pope's money without exposing his project even to him: he would have no partner in his plan except Parma, of whose secrecy and fidelity he was as sure as of his own inflexible design. From before the fall of Antwerp that plot had been gradually ripening. The Grand Commander of Castile had, by Philip's orders, mapped out the whole enterprise early in 1586, in most elaborate detail. France was still, with Spanish money, to be kept in civil war, so that it could be no impediment in any direction. Troops for the invasion of England were to be collected in Flanders, as though for an enterprise against Holland and Zealand, while the Armada, which was to cover the passage over, was to be prepared in the ports of Spain, *ostensibly for an expedition to the Indies*. The queen of Scotland being then alive, it was determined to marry her to Alexander Farnese immediately the country was conquered; and as they were not likely to have any children, various ulterior arrangements were contemplated. The ground plan of the whole scheme being thus magnificently laid in the Escurial, Parma was requested to examine it and put in the finishing strokes. The prince, by a paper found among the archives of Simancas, reminded the king that, when, as a good Catholic—

"Two or three years before he had sent his master an account of the coasts, anchoring-places, and harbors of England, he had then expressed the opinion that the conquest of England was an enterprise worthy of the grandeur and Christianity of his majesty, and not so difficult as to be considered altogether impossible. To make himself absolutely master of the business, however, he had then thought that the king should have no associates in the scheme, and should make no account of the inhabitants of England. Since that time the project had become more difficult of accomplishment, because it was now a stale and common topic of conversation every where—in Italy, Germany, and France; so that there could be little doubt that rumors on the subject were daily reaching the ears of Elizabeth and of every one in her kingdom. Hence she had made a strict alliance with Sweden, Denmark, the Protestant princes of Germany, and even with the Turks and the French. Nevertheless, in spite of these obstacles, the king, placing his royal hand to the work, might well accomplish the task; for the favor of the Lord, whose cause it was, would be sure to give him success.

"Being so Christian and Catholic a king, Philip naturally desired to extend the area of the holy Church, and to come to the relief of so many poor innocent martyrs in England, crying aloud before the Lord for help. Moreover, Elizabeth had fomented rebellion in the king's provinces for a long time secretly, and now, since the fall of Antwerp, and just as Holland and Zealand were falling into his grasp, openly.

"Thus, in secret and in public, she had done the very worst she could do; and it was very clear that the Lord, for her sins, had deprived her of understanding, in order that his majesty might be the instrument of that chastisement which she so fully deserved."—(Vol. ii. p. 270.)

Three points, he said, were most vital to the invasion of England — secrecy, maintenance of the civil war in France, and a judicious arrangement of matters in the provinces. After enlarging on each of these points, he then proceeded to enter into the details of the expedition, specifying the number of troops which would be required, describing the craft which he should have to provide, and descending to the smallest particulars.

The letter was written in April, 1586. Philip steadily followed out the pro-

* Concluded from page 505, Vol. li.

gramme. Tremendous was the activity in all the dockyards of Naples, Sicily, Portugal and Spain, but especially in Cadiz and Lisbon. For a year galleons, galeazas, caravels, brigantines, tenders, and warlike stores had been quietly accumulating in the vast harbors of these two cities, when Drake, who, like a true sea-king, was accustomed to carry on war on his own account, came to see how they were getting on; and it was then that he "singed the king of Spain's beard," as he termed it, by burning, scuttling, rifling, and sinking many thousands of tons of shipping, driving the Spanish galleys under their forts for shelter, and challenging Santa Cruz, who was to command the Armada, to come out and exchange bullets with him. Nevertheless he was not of opinion that he had materially damaged the Spaniards, so vast were their preparations. "But," said Sir Francis, "I thank them much that they have staid so long, and when they come *they shall be but the sons of mortal men*." Yet we learn from the archives of Simancas, by a communication of the Spanish ambassador, that when the pope knew what *Draques* had done at Cadiz, he declared that Philip was a poor fellow, and that the queen of England's distaff was worth more than his sword!

Alexander Farnese, Prince of Parma, was rapidly organizing the military part of the expedition with all the patience, ingenuity, and genius which distinguish a consummate general. This prince, with his unswerving fidelity to his master, his unalterable attachment to the cause of Catholicism, his chivalry in the field, his unquenchable ardor, dauntless vigor of character, and inexhaustible fertility in the most brilliant combinations and efforts of military skill, was worthy to have served in a better cause; but a scion of a papal family, nursed in the school of morals of the Jesuits, it was hardly possible for him to be other than he was, loyal to the last breath to the cause of Romanism and Philip as its chief, but capable of every violation of morals and right which might seem advantageous to the intolerant ambition of the Catholic Powers. A man born to command, with a spirit at once impetuous and patient, nursed in the traditions of the famous military schools of Italy, which produced great captains and Condottierri from the days of the Sforzas down to those of Spinola and Montecuculi, he now entered heart and soul into the plans for the subjugation of England. Mr. Motley's portrait of Alexander of Parma, is one of the most striking passages in these volumes:—

"Untiring, uncomplaining, thoughtful of others, prodigal of himself, generous, modest, brave; with so much intellect and so much devotion to what he considered his duty, he deserved to be a patriot and a champion of the right, rather than an instrument of despotism.

"And thus he paused for a moment—with much work already accomplished, but his hardest life-task before him; still in the noon of manhood, a fine martial figure, standing, spear in hand, full in the sunlight, though all the scene around him was wrapped in gloom—a noble, commanding shape, entitled to the admiration which the energetic display of great powers, however unscrupulous, must always command. A dark, meridional physiognomy; a quick, alert, imposing head; jet-black, close-clipped hair; a bold eagle's face, with full, bright, restless eye; a man rarely reposing, always ready, never alarmed; living in the saddle, with harness on his back—such was the Prince of Parma; matured and mellowed, but still unharmed by time."—(Vol. i. p. 138.)

This general, who was capable of draining whole districts for the sake of taking a town, was now cutting down forests in the land of Waes for the construction of transports and gun-boats; digging canals to bring them down to his seaports of Sluys, Newport and Dunkirk; protecting his canals with artillery against the rebel Netherlanders; and providing portable bridges, stockades for intrenchments, rafts and oars; and superintending his engineering operations with the most unwearying activity. Besides the troops he already had under his flag, three thousand soldiers reached him from Northern and Central Italy, four thousand from Naples, six thousand from Castile, and three thousand from Aragon, three thousand from Austria, with four squadrons of Reiters, besides levies in Franche Comté and the Walloon districts. No preparation was omitted; to provide for these troops, there were hundreds of ships—flat-bottomed transports and river hoys—horses, mules, saddles, spurs, lances, mills for grinding corn, barrels of beer, and tons of salted beef and biscuit. Nothing was left unthought of down to the sumptuous equipment of the body-guard with which he was triumphantly to enter London.

But what was the attitude of England and its queen in the face of these sumptuous preparations? Walsingham was

informed of every thing. He had a full and correct inventory of the prince of Parma's purchases. He knew precisely how many pairs of velvet shoes, how many silk roses, white and red, how many pieces of cramoisy velvet, how many hundredweight of gold and silver embroidery the prince had ordered, how all the lances were bravely painted with their colors as for a triumph, and how the litany was read in all the churches daily for the prosperity of the prince in his enterprise. But the warnings of Walsingham against Spain were an old story. The queen would not listen to them; she had shut her ears for the last sixteen years to Walsingham's advice, and could she believe him now when that gallant soldier, the prince of Parma, told her, and Philip gave out, that these great preparations were for the Indies, or perhaps for the Netherlands, or perhaps for both? The counsellor, who was her chief support in this view, and who taught her to hope for peace where there could be no peace, was the lord Treasurer. Burleigh, in his flowing gown, white wand, and reverend aspect, was one of those respectable, timid gentlewomen who appear from time to time as statesmen, wanting always to be on the safe side. Their fears make them warlike and audacious in time of peace; and importunate for peace when there is no hope but war. No one more than Burleigh had urged Elizabeth to the execution of the queen of Scotland. While Mary lived he had been convinced that there was no hope of England's safety, or of the queen's. His fears were so unendurable on this subject, that any means were fair to get rid of them —he made two attempts to have the Scottish queen assassinated with perfect security to himself, and failed. Nevertheless, Burleigh must or should have known that the execution of Mary was an act of mortal defiance to the whole Catholic world. No sooner, therefore, did the head of Mary fall in the hall of Fotheringay Castle, than a cry for vengeance arose throughout Europe. Not only did the Jesuits of Italy, Spain and Austria clamor for the blood of Elizabeth, but all the preachers of the league thundered against the wicked Jezebel of England, and demanded her blood as an expiation for that of the royal martyr, the remembrance of whose beauty and youth, and whose relationship to the Guises, goaded the Parisian populace to madness. Philip was preparing his mighty armament against England, not only as the chief of the Catholic world, but as one who himself had a claim to avenge the death of Mary, inasmuch as she had appealed to him for protection, and by a solemn instrument, which he affected to consider valid, had constituted him heir of all her rights and dominions. Burleigh knew very well that from north to south, from east to west, throughout Europe, for the last two years, the invasion of England had been the all-pervading dream of the Catholic mind; and that the subjugation of England was to be the stepping-stone to that of Holland, and to the complete triumph of Romanism. It was not a matter about which there could be any doubt in the eyes of any sane person of that epoch; it was openly avowed and openly hoped for from Paris to Rome, and from Vienna to Madrid; and if Philip had succeeded, he would have been but the instrument of the public opinions of the greater portion of Europe. On every side the evidences of his designs were now patent. Ireland was kept by him in a chronic state of rebellion under Tyronne; in Scotland, James VI., still unappeased for the death of his mother, allowed the Jesuits free range over his kingdom, and the Earls of Huntley, Morton and Crawford to concert measures with the Duke of Parma. From the Vatican the Pope launched forth his bulls of excommunication and deposition; and in France, Philip, true to his policy, kept the whole force of the nation writhing in civil war, and, as fit preparation for his great movement, ordered the chiefs of the League to Paris, who there brought about the day of the barricades, which drove the king from the capital, and gave Philip's creature, the Duke de Guise, supreme authority in the metropolis. The king of France was thus, to use the words of the Prince of Parma, reduced to a state of helplessness which did not permit him "to assist the queen of England, even with his tears, of which he had need to weep his own misfortunes." *Fifteen days after the day of barricades* the Spanish fleet sailed out of the Tagus on its way to England.

Such, besides Walsingham's constant intelligence of all the details of the destined invasion, were the general indications of the storm at hand; and yet Burleigh to the last contributed to lull his queen and his country into a false security, and ob-

stinately persisted in carrying on those secret negotiations for peace which were the disgrace and nearly the ruin of England, and a continued disloyalty to the Netherlands. The researches of Mr. Motley have brought to light for the first time a great many curious details of the deepest historical interest on these underhand transactions.

A Genoese merchant, named Grafigny, residing much in London and Antwerp, was the officious instrument of the negotiation. Having occasion to wait on the Prince of Parma for a passport, they began to talk about the distress of the country, the damage to trade, and matters which the man of commerce found especially obnoxious to him. Parma gave out that all he wanted was peace; and spoke in terms of vast admiration of the queen. Grafigny, acting on this hint, sought out Lord Cobham, in England. The peace party in England, Burleigh at their head, instantly caught at the bait thus hung out to them. Then ensued an active correspondence between persons more or less in the confidence of Elizabeth and Parma, and having direct access to each. Parma was informed that the queen was most pacifically disposed; the prince replied with an infinity of compliments that peace then was an easy matter, and in this underhand way negotiations were set on foot. Parma from the first informed Philip of what was going on, and told him he did it in order to gain time, to set the English to sleep about the invasion, and to slacken their defences. But the queen and her advisers kept her share of the transaction a secret from her allies, the Netherlanders, and when taxed about the matter denied it roundly. Parma at length himself wrote to Elizabeth letters full of effusion and cordiality. Burleigh replied for her to his Flemish correspondent in letters equally effusive and complimentary. During the whole of 1587, these negotiations dragged their slow length along; the queen, with Burleigh and others, persisting in thinking something was to be got by them, Walsingham from the first setting his face against them. Leicester, when in the Netherlands, got at last sufficient information to enable him to speak out. "Surely you shall find," he wrote to Burleigh, "the *prince meaneth no peace;* I see *money doth undo all*, the care to keep it, and not upon just cause to spend it." From every quarter the queen received warnings; even the king of France was beginning to see the folly and weakness of his own conduct, and held a long conference with the English ambassador at Paris, on the hopelessness of settling any peace with Spain, whose designs he well knew. The States got wind of these transactions long before Leicester; and there is little cause to wonder that the brave Hollanders and Zealanders, who were prepared to retire to the last foot of sand and shed the last drop of their blood before they would submit to Spain, should, on hearing of these clandestine and disloyal efforts for peace, have lost all confidence in the queen and in England, and grown infuriated when Deventer and Zutphen were lost by the treason of Englishmen. Yet, in spite of all, Burleigh continued writing his interminable sentences to his correspondent, De Loo, wanting the prince, before commissioners were really sent, "to assure her majesty by his writing that he would, upon his honor, with all expedition send to king his advice to stay all hostile actions, or to have the king's answer, like a prince of honor, *whether he intendeth or no to employ these forces against her majesty, and yet her majesty will stand well by the duke's answer* if the army shall not be known to be actually prepared against England."

We should imagine that there is nothing in all history equal to the ineffable simplicity of this letter, when we consider that it came from Burleigh and was inspired by Elizabeth. Here was Burleigh, the statesman, who had counseled the surreptitious taking off by private hand of the Queen of Scots, to avoid public scandal; here was Elizabeth, who certainly showed at several epochs in her life that she was a mistress in the arts of dissimulation, and who was now herself deceiving her allies, asking, in an age of universal chicane and intrigue, an Italian prince, taught in the school of the Jesuits that to deceive a heretic was the duty of a Romanist—to give them a straightforward avowal of what they knew, if true, it was his interest to conceal. What could the duke reply, but in high flown Italian compliment with pious asseverations, that he above all was desirous of the public welfare and tranquility? Elizabeth and her advisers were sincere in their protestations for peace, for they wanted it. Parma was insincere because

he did not want it. Parma, at least, with all his mendacity, was true to Philip and his creed; and the peace party in England were untrue to their allies, and to their creed in seeking for it in this disloyal manner. The conduct of Elizabeth and Burleigh on this success would be inexplicable, did not history show us, over and over again, the truth that persons capable of the deepest artifice and dissimulation, will at times, as in the case even of Cæsar Borgia, only believe what they want to believe. That which really deceived Elizabeth on this occasion was her avarice; this had made her haggle and procrastinate about assisting the Netherlanders; the expense of that assistance had made her hate the war, and hate the name of the Netherlands; and now her avarice made her prefer these ignominious attempts to solder up a peace, rather than expend money in putting the country in a proper state of defence. Parma, as Leicester told them, was using these negotiations as a blind to hurry on his preparations as fast as possible. Elizabeth was using them as an excuse to herself and her country for not drawing her purse-strings, and not doing that which the commonest prudence dictated.

The correspondence of Philip and Parma, which Mr. Motley has hunted up in the archives of Simancas, reveals the shameless mendacity with which they on their side continued to hold forth the tempting lure of negotiation; but it was a mendacity which ought to have deceived no one. At the very time that Parma was writing affectionate letters to the queen, he had before him Philip's last directions about the English invasion. Philip told him one hundred ships, twelve thousand trained infantry, with abundance of volunteers, were all ready. "Nothing," said the king, "had been allowed to transpire in Spain, or at Rome: every thing must be done to keep the secret." Parma told the king the course of the negotiations, but also begged to be informed whether there were any terms upon which the king would really conclude a peace.

"The condition of France, he said, was growing more alarming every day. In part there seemed to be hopes of peace in that distracted country. The Queen of England was cementing a strong league for herself with the French king and the Huguenots, and matters were looking very serious. The impending peace in France would never do, and Philip should prevent it by giving Mucio (their cant name for the Duc de Guise) more money. Unless the French are entangled and at war among themselves, it is quite clear, said Alexander, that we can never think of carrying out our great scheme of invading England.

"The king replied that he had *no intention of concluding a peace on any terms whatever, and therefore could name no conditions;* but he quite approved of a continuance of the negotiation. The English, he was convinced, were utterly false on their part, and the King of Denmark's proposition to mediate was part and parcel of the same fiction. (Guise was to have his money, and Farnese to go steadily on with his preparations.")— Vol. ii. p. 307.)

On the same day Philip wrote another letter to the same purport. He refused to send Farnese full powers for treating, but the prince was to say that he had had them for some time, and decline to show them till satisfaction had been made on certain points; he enlarged on the misdeeds of England, on the inhuman murder of the Queen of Scots, on the piracies at sea and in the Indies, and on Drake's late "singeing of his beard" at Cadiz and Lisbon. Farnese was to express astonishment that the English should desire peace while committing such actions; but, in order to make use of the same arts employed by the enemy, the latter were not to be undeceived as to the negotiations, which were to be kept on foot with the strictest understanding that they should lead to nothing. The king's secretary, Don Juan de Idiaquez, wrote another letter to the same purport. This was on the thirteenth of May, 1587.

At last commissioners were appointed on both sides; and when commissioners were appointed it was no longer possible for Philip to withhold the full powers. They were accordingly sent, but with the most distinct injunctions to Farnese that *they should be considered as of no authority at all.* The English envoys arrived at Ostend, in March, 1588, and proceeded to meet Parma at Ghent. The embassy consisted of the Earl of Derby, Lord Cobham, Sir James Croft, Valentine Dale, Doctor of Laws and former embassador of Vienna, and Dr. Rogers. With them also came Robert Cecil, youngest son of Lord Treasurer Burleigh. It is of little consequence what they did, when we know beforehand that the whole business was a delusion. Suffice it to say that there were banquetings, meetings, cor-

dialities of the most tender character, interchanges of amenities and presents of the most touching description, hares, pheasants, casts of hawks, couples of English greyhounds, and barrels of Ostend oysters. The prince himself, when he had no more pressing occupation on hands, would confer with Dr. Rogers or Dr. Dale, listen to their pedantic harangues, smile with them, weep with them, hug them in his arms, speak in the most gallant manner of the queen, and go through his part with all the graces of a consummate comic actor. Thus passed six months of time, months perhaps the most precious in the whole of modern history, months on which the fate of all civilization depended, months in which the legions of Jesuitism and Papal darkness were arming themselves in invincible array to come forth and trample under foot the most sacred rights of humanity in their last refuge in England and Holland, and reduce the conscience of Europe into a degrading and hopeless state of bondage from which it might never have been enabled to liberate itself up to the present hour. For long after the very days on which the Spanish fleet sailed from the mouth of the Tagus, after the very hour in which the Spanish and English fleets were exchanging broadsides on the coast of Devonshire, did the English commissioners remain protocolling, writing apostilles, and exchanging civilities with the representatives of Spain. Not even the bull of Sixtus V., in which Elizabeth was denounced as a bastard and usurper, and her kingdom solemnly conferred on Philip, published in Antwerp in the English tongue, nor the infamous libel of Cardinal Allen, were sufficient altogether to undeceive the queen, for, on the ninth of July, she commanded Dr. Dale to obtain explanations of the prince about his contemplated conquest of her realm, and his share in the publication of the bull and pamphlet; and to "require him, as he would be accounted a *prince of honor*, to let her plainly understand what she *might think thereof*." It is true, in her letter to her commissioners, she says that she has discovered that the treaty of peace was only entertained to abuse her; but still her envoy was to inform the prince that she would trust to his word; and *this six weeks after the sailing of the Armada*, when, if it had not been for the unwieldy character of the vessels, and a tempest which overtook them off Cape Finisterre, and compelled them to put into Corunna and other ports of Spain for more than a month to repair, the fate of England would already have been settled either one way or the other. It will have been seen by Philip's letter to Parma that it was imagined the negotiations were also illusory on the part of the queen, but there is no proof of this; there is every proof that up to the last the queen was the dupe of a strong delusion, and that Burleigh was the dupe of his own wish to be on good terms with her, and to take the cautious side.

Meanwhile there can not be the smallest doubt, from abundant contemporary evidence, that the queen had sacrificed the security of the country to her avarice and her obstinacy. The Armada left the Tagus on the twenty-eighth, twenty-ninth, and thirtieth of May; damaged by the storm off Cape Finisterre, it arrived in Calais roads, where it was to effect a junction with Parma, on the sixth of August. Had there been no storm, and had the junction been effected with Parma, the Spaniards might have landed on English ground at least before the end of June. It is painful to think that at that time, with the exception of Howard's little squadron cruising about in the channel, neither fleet nor army were in any way prepared for resistance. The country was burning with enthusiasm, but sinking with anxiety and delay, and loathing the very name of peace. From before the massacer of Saint Bartholomew, from near the commencement of the heroic struggle in the Netherlands, that is to say, for nearly twenty years, it had been felt by every Protestant heart in England that the death grapple with Spain must come at last. England, without Scotland and Ireland, then a little nation of barely four millions of inhabitants, was full of heroic souls, like the Sidneys, Fulke Greville, Howard, the Norrises, Sackville, Raleigh, Essex, Drake, Hawkins, and all her great sea captains, who had grown wild with desire to cope with the great colossus of Spain, swoln with the wealth of both Indies and of Europe, and outnumbering the English by many millions. Yet these had up to the present time been held back, fretting and foaming at the imperious curb of the queen's obstinacy; all their patriotism and noble passion sacrificed either to her parsimony or her fa-

voritism. When the queen did give the word the nation rose, and rose *en masse*; but she gave the word too late.

Although this assertion is totally at variance with the received tradition of Elizabeth's spirit and forethought on this great occasion, the evidence collected by Mr. Motley from our own state papers, and an accurate comparison of the dates, places the fact beyond all doubt, and throws an entirely new light on the history of the projected invasion. England's defenders were praying in vain up to the last for means to protect their country, and cursing in their hearts these negotiations.

Old Hawkins wrote to Walsingham in February, 1588:—

"We might have peace, but not with God; but rather than serve Baal, let us die a thousand deaths. Let us have open war with these Jesuits, and every man will contribute, fight, devise, or do for the liberty of our country."

The Lord High-Admiral Howard wrote in the same month to Walsingham:—

"Since England was England there never was such a stratagem and mask to deceive her as this treaty of peace. I pray God that we do not curse for this *a long gray-beard with a white head witless*, that will make all the world think us witless. You know whom I mean."

The Lord Treasurer plain enough!

In March, Howard was complaining that the queen was keeping "those four great ships" to protect Chatham church. Drake was not ready with his squadron, "and yet," said Howard, "the fault is not with him."

On the 17th of April, Howard again wrote, beseeching for one of "those four great ships;" and ended his letter in despair.

"Well, well! I must pray for peace, for I see the support of an honorable war will never appear. Sparing and war have no affinity together. I am sorry that her majesty is so careless at this most dangerous time."

The Spanish fleet was reported by Drake in *April* as already numbering from four hundred to five hundred ships. "*By midsummer*," says Mr. Motley, "there was ready in England a total force of one hundred and ninety-seven vessels manned and partially equipped, with an aggregate of twenty-nine thousand seven hundred and forty-four tons, and fifteen thousand seven hundred and eighty-five seamen." Of this fleet a large number were mere coasters, of less than one hundred tons each; scarcely ten ships were above five hundred; and but one above one thousand. The greater portion of these ships were furnished by the English merchants and private gentlemen in London and the sea-ports. The aggregate tonnage of the royal navy was eleven thousand eight hundred and twenty. "Not half so much as at the present moment—in the case of one marvelous merchant steamer," floats on a single keel. The preparations of the land forces were even more dilatory than those of the sea. Sir John Norris was the best soldier in England, and he was to be Marshal of the camp under the favorite Leicester, commander-in-chief. An army had been enrolled, but it existed principally on paper. Leicester's force was to consist of twenty-seven thousand infantry and two thousand horse; but by midsummer they had not reached half that number. Lord Chamberlain Hunsdon was to protect the queen's person with an imaginary army of thirty-six thousand. The Lord-Lieutenant of each county was expected to lead out his militia, and it was here that the real strength of the country lay, however ill-prepared. Leicester was just commencing his camp at Tilbury, with four thousand men, and Lord Hunsdon's force was *not assembled at all* on the seventh of August, when the Spanish army might have crossed over from Calais Roads in a night, and landed on the soil. The queen's "Bellona-like" appearance on her white palfrey, amid the ranks at Tilbury; and her heroic speech, which has excited the admiration of every English child, did not happen *till eleven days afterwards*—"not till the great Armada, shattered and tempest tossed, had been a week long dashing itself against the cliffs of Norway and the Faroës, on its forlorn retreat to Spain." To the last we have Leicester inveighing against the penuriousness of the queen. On the 5th of August "our soldiers do break away at Dover, or are not pleased. I assure you, without wages the people will not tarry, and contributions go hard with them. Surely I find that her majesty must needs deal liberally, and be at charges to entertain her subjects that have charge-

ably and liberally used themselves to serve her."*

It was fortunate for England that Philip on his side, as he pedantically directed the vast expedition from his cabinet in the Escurial, made blunders sufficient to preclude all hopes of success. The autocrat's plans had often been ruined by his irresolution and procrastination; they were now made fruitless by his angry precipitation. In the first place, the fleet was no longer commanded by the Marquess de Santa Cruz; that veteran seaman had died of grief and vexation at his master's insults and reproaches. Alonzo Perez de Guzman, Duke of Medina Sidonia, the first grandee of Spain, but an officer without character or experience, was entrusted with an enterprise requiring the nicest union of courage and discretion. In the second place, the king gave instructions that the fleet was not to give battle until the junction with Parma; but there was no provision whatever how the junction with Parma, which was the very key-stone of the whole conception, was to be effected. And this was the real difficulty in the enterprise, for Alexander with his vast preparations, and his splendid levies and reinforcements, with his light craft and flat-bottomed transports, was cooped up in his shallow harbors by the Dutch fleet; he was completely nailed to the side of Flanders—held in a vise by the Hollanders and Zealanders, with their large and small craft, until such time as his tormenting foes should be driven away. In vain had Alexander Farnese repeatedly assured Philip of the necessity of getting hold of one of the large ports of the Netherlands as a basis for his operations against England. Philip obstinately persisted in believing that Farnese could pass with his light flotilla through the Dutch fleet whenever he chose, or rather the king laid his plans as though the Dutch fleet was not in existence. In all human probability the sturdy occupation of the coast by those Dutch skippers saved England from invasion—a memorable example to all time of the vital importance of the Dutch and Belgian ports to the security of this country!

* The penuriousness of the queen was so extraordinary, that it amounted to a monomania. When it was reported that the Spanish fleet had taken refuge in Corunna, she ordered Effingham to lay up some of her largest ships and discharge the seamen. But Effingham begged leave to retain all in commission at his own expense.

The Spanish fleet, after its first mishap, had got well under sail on the twenty-second of July, and on the twenty-ninth they were off the Lizard; and the same night, throughout the length and breadth of England, mountain, cliff, and foreland threw up, one after another, their fiery signals that the foe was at last on the coast. Slowly, in pompous array, like a floating city, the Armada, one hundred and thirty-six sail, floated up the channel. Its enormous galleons and galeasses, rowing-galleys and tenders, arranged in the form of a crescent, the largest vessels castellated at stem and stern, with low waists, and shot-proof towers, were, however, with all their parade of gilded saints and bulwarks, pulpits, streamers, standards and ostentatious pageantry, little match for the light-heeled cruisers of Hawkins, Drake, Winter and Frobisher, who fell in with them on the thirty-first of July. The superiority of English seamanship was never more manifest than on that day. The great Spanish hulks, from the very beginning, found themselves out-maneuvered by their nimble adversaries, riddled with shot, and unable to get a blow in exchange. The English craft walked round and round them, and inflicted the most fearful punishment, so that on the very first day the flag-ships of the Guipuzcoan and of the Andalusian squadrons, with a general, admiral, four hundred and fifty officers and men, and some one hundred thousand ducats of treasure, were lost to the Spaniards. On went the Spanish fleet, however, leisurely wafted up the channel, followed by the English. On the second of August, there was as Hawkins said, "a sharp and long fight," and volunteers of all ranks, like Cumberland, Northumberland, Oxford, Raleigh, Brooke and Dudley, Willoughby and others, came off to the queen's ships from the coasts of Dorsetshire, to take their share of the day's glory. The tactics day after day were of the same kind; the unwieldy Spanish hulks trying in vain to grapple with their light-winged antagonists who poured in their broadsides and danced away. On the fourth of August both fleets were off Dunnose, in the Isle of Wight. Here Frobisher, in the Triumph, got to close quarters with the Spaniards, and was in some danger; when Effingham, the Lord Admiral, in the Ark Royal, with the Golden Lion, the White Bear, the Elizabeth, the Victory and the Lei-

cester, bore down into the midst of the Spanish fleet, and laid himself within point-blank range of Medina's flag-ship, the St. Martin, while his comrades were at equally close quarters with the St. Mark, the St. Luke, the St. Philip, and the rest of the apostolic squadron. As soon as Frobisher, however, had extricated himself, the admiral gave the signal for retreat, and the English walked away from their gigantic adversaries, leaving behind them ghastly marks of punishment, while the enemy's fire went high over their heads. On the sixth of August, nevertheless, the Spanish fleet dropped anchor in Calais Roads, without having suffered any serious discomfiture.

The English fleet dropped anchor in front of them, at a mile and a half distance, and during that night and the next day, Sunday, the seventh of August, the fleets remained rising and falling at their anchors. The impatience on board the Spanish fleet increased from hour to hour, mixed with horrible suspicions of treachery. Where was Parma? Where were his invincible legions, seasoned in the smoke of a hundred battle-fields? Where was the famous *Terzio* of Naples, three thousand five hundred strong, the most splendid regiment ever known in the annals of war? Where the renowned columns of Spanish infantry, then the most terrible in the world, and celebrated by Bossuet a century later for being as solid as ramparts, but ramparts capable of repairing their breaches? Where were the Margraves, princes, arch-dukes, scions of royal houses and noble English traitors, who had rushed to the camp of Farnese as to a tournament? Alas! the plot, like Hotspur's, was an excellent plot, but it was made up, unfortunately, of two halves which could not be got together. Farnese was, Drake said, "raging like a bear robbed of her whelps." Day after day he had told Philip that it was impossible to get out with his flotilla and transports—that the armada must at least clear the way for him. With incredible labor and expense he had got his troops down to the sea coast; on the news of the arrival of the Armada before Calais he had packed his men like sacks of corn in his boats, in the hope of being able to get out to sea, but the Hollanders and Zealanders guarded every outlet, braved him, taunted him, laughed him to scorn. Alexander, beside himself with rage, ordered a thousand musketeers to assault those insolent boatmen. "With his own hand," so it is related, "he struck dead more than one of his own officers who remonstrated against these commands, and then the attack was made by his thousand musketeers upon the Hollanders, and every man of the thousand was slain!" And while he thus continued to wait, the prince of Ascoli, who had gone ashore from the Spanish fleet off Calais, brought him news of the panic struck into the Armada by Effingham's fire-ships, and of their dispersion and flight.

"To the queen's glorious naval commanders, to the dauntless mariners of England, with their well-handled vessels, their admirable seamanmanship, their tact and their courage, belonged the joys of the contest, the triumph, and the glorious pursuit; but to the patient Hollanders and Zealanders, who, with their hundred vessels, held Farnese, the chief of the great enterprise, at bay, a close prisoner with his whole army in his own ports, daring him to the issue, and ready—to the last plank of their fleet, and to the last drop of their blood—to confront both him and the Duke of Medina Sidonia, an equal share of honor is due. The safety of the two free commonwealths of the world in that terrible contest was achieved by the people and the mariners of the two States combined."—(Vol. ii. p. 465.)

Meanwhile the fire-ships of Effingham, on the night of the seventh, had thrown a frightful panic among the crews of the Spanish fleet; many vessels were disabled, two fired, and the rest driven from their moorings. Nevertheless Medina Sidonia would have returned to take up his quarters, but in the six hours' fight of the following day, in which Winter especially distinguished himself, so many of his ships were disabled that he was compelled to order a retreat. Spanish sailors who had been in the battle of Lepanto said that that famous sea-fight was far outdone by this combat off Gravelines. The conduct of our great sea-captains, even after that event, was a union of the most consummate audacity and prudence. They kept close to the heels of the Spanish fleet, nearly drove them on to the fatal sands of Zealand; and when the enemy, by a change of wind, were enabled to stand out to sea, the English fleet followed them, although many ships were without ammunition or provisions. "Though our powder and shot was well nigh spent," said the Lord Admiral, "we put on a brag

countenance and gave them chase, as though we wanted nothing."

Part of the fleet put back to cover the mouth of the Thames, and look after the Prince of Parma, but the Lord Admiral dogged the flying Spaniards over the North Sea till the twelfth of August, when he put back. It seems that Medina Sidonia was on the point of hanging out the white flag, so terrified was he at the prospect of having to weather the tempestuous passage round the Orkneys and the Hebrides. On the fourteenth came that tremendous storm which strewed the greater part of the shattered hulks in wrecks about the granite rocks of Norway and the Faroës. Out of thirty thousand men scarce ten thousand returned to Spain. There was hardly a noble family in the country which was not in mourning—*afflavit Deus et dissipantur.* In the words of Drake, "Their invincible and dreadful navy, with all its great and terrible ostentation, did not in all their sailing about England, so much as sink or take one ship, bark, or pinnace, or cockboat of ours, or even burn so much as one sheep-cote on this land." Nevertheless it must be admitted that the penuriousness of the queen exposed England to a frightful danger. The love of sparing—as her generals called it—was with her an infatuation, a monomania, carried to such an extent that it imperiled the existence of England, and subjected her noblest defenders to lamentable and cruel forgetfulness on the part of their obdurate mistress. Before the danger had even passed away, in the latter days of August, the sailors were dying by hundreds and thousands of ship fever—perishing in the ships, and in the streets of the naval ports, with no hospitals to take them in. "It would grieve any man's heart," wrote the Lord Admiral, "to see men that have served so valiantly die so miserably. The crews had been eight months at sea, subject to excessive privation, and could not get their wages; so that," said Howard, "it breeds a marvelous alteration among them."

Yet the spirited attitude of the queen at Tilbury, and the annihilation of Philip's great enterprise, raised the temper of the country to an heroic height. Then commenced that series of glorious enterprises which carried terror and destruction into every port where Spanish was spoken, which cut off every fleet, and ravaged their colonies one after another from Porto Rico and Nombre de Dios to the coasts of Chili and Peru. The queen herself, on the accession of Henry IV., came liberally forward to his assistance; and the valor of Lord Willoughby, Norris, Williams, Baskerville, Borroughs, Umpton, Vere, and Essex contributed to secure the throne of France, in spite of the Duke of Parma and the League, for the monarch to whom Protestantism was to owe the glorious triumph of the edict of Nantes. For after the destruction of the Armada a rapid change took place in the affairs of France. In the same year the Guise was murdered by Henry III., who himself was assassinated by Jacques Clement on the first of August, 1589, and with the victories of Henry IV. the dark cloud of Spanish ambition passed away from the face of Europe.

We have thus been enabled, with Mr. Motley's assistance, to pass in review one of the most famous episodes of English history, the ignominious defeat of the greatest conspiracy against the freedom and conscience of man which was ever attempted. It has been impossible in the limits of these pages to do justice to the noble spirit and achievements of our navy; for it must never be forgotten, that the storm did no more than consummate the disaster of the enemy. Much as we value the new light which Mr. Motley has thrown on this famous passage of our history, we differ from him in his estimate of the results likely to follow, even had Parma effected a landing. When we consider not only the gallantry and seamanship of England's naval heroes on this occasion, but also that which Raleigh and Essex displayed soon after, as well as that eternally memorable action of Sir Richard Grenville, three years later, when with one ship and a crew of a hundred and three, he engaged the whole Spanish fleet of fifty-three sail and ten thousand men, from three in the afternoon to the break of day the next morning, during which engagement he destroyed four ships and a thousand men; it can not be imagined that even had the Spaniards succeeded in effecting the junction with Parma; and in landing on the coast that they could long have maintained a position in England. The English fleet, inferior as it was in point of size and number, showed itself even without the aid of the storm, more than m tch for the Great

Armada. Whatever force had landed on the coast, whatever military position the genius of Parma might have taken up, the invading army would have found itself cut off by the indomitable courage of men like Drake, Howard, Frobisher, Winter, and Hawkins — men who could not only have got fitted out in English ports, but in the Netherlands.

Besides which, a country in arms, as the England of that day was, is nearly invincible. It must be remembered that every citizen was trained, as he ought indeed to be, to the use of arms. Our noblemen and gentlemen from earliest youth were practiced not only in hunting, horsemanship, and the mimic warfare of the lists, but at the sword and dagger, wrestling, throwing, leaping, and every manly exercise. "First, in any case, practice with the single sword, and then with the dagger; let no day pass without an hour or two of such exercise; the rest study and confer diligently." So writes Sir Philip Sidney to his brother Robert at the University of Strasbourg, after a great deal of advice about Aristotle and logic. No father wrote to his son at school in those days without telling him to play out his play lustily at weapons. Nor were the yeomen, peasants, and townsfolk less practised at singlestick, pike exercise, and every kind of athletic sport. An army of such men headed by the lord-lieutenants and gentlemen of the county would have made short work with the invaders; and we know the Catholics themselves, as soon as the real danger appeared, volunteered to serve as soldiers in the ranks or as seamen in the ships.

Neither do we agree with Mr. Motley in esteeming Philip insincere in his Catholicism. In our opinion he has at least that excuse for his barbarity, if it be an excuse. We regard him with the same horror as an idolater who thinks to appease and worship his deity with groans, torture, and unceasing anguish of innumerable victims. His God was the idol of bigotry, who turned a deaf ear to mercy, and whose delight was pain. We have no doubt he spoke the real feeling of his heart when he said to the victim, who was about to be burned at the stake: "Perish thou, and all like thee; if my own son were a heretic, I would deliver him to the flames." The very letters in these volumes are to us, in their cold, rigid, pietistic tone, a proof of the sincerity of his fanaticism. It is true that when he was a candidate for the Empire of Germany he offered beforehand to tolerate Protestantism in his dominions. But there can be no doubt that his confessors would, if he had succeeded there, instantly have relieved him from the obligation, and that to have arrived at such a dignity by means of a broken vow would have been regarded as a triumph for Romanism. He doubtless had not the most remote intention of keeping such a promise at the time he made it. Both he and Catherine de Medici will long remain conspicuous in history, as examples of how completely a Jesuit education can extirpate the conscience, and leave nothing behind but superstition and cruelty. In the Catholic world, all greatness of character perished, and through the confessional the spirit of Loyola governed all. The conscience of all Catholic Europe passed through the alembic of the Jesuit, and the result has endured to this day. Italy is only now endeavoring to awaken from the pernicious effects of the deadly poison then infused into her system; and it would seem as though Spain, the land of the Inquisition of Philip II., in its feeble and frantic efforts at life, was yet long to remain as a warning and an example of the terrible past from which we have escaped.

From the London Review.

A HARD-WORKING AGE.

"For all manner of persons," said Thomas Carlyle, "how much could one have wished that the making of our British railways had gone on with deliberation; that these great works had made themselves, not in five years, but in fifty and five!" Since the "Latter-day pamphlets" were written, the three great engineers of the railway mania have died premature deaths. Stephenson, Brunel, and Locke, humanly speakly, might have been alive at this moment if the feverish and fatal development of the railway system had not made an excessive demand upon their nerves, their intellects, and their physical strength. The seeds were sown in 1845 of the gradual diminution of vital power and lingering diseases that carried them off in 1859–60. Of the professional compeers and associates who shed generous tears of sorrow around Stepensons's tomb in Westminster Abbey, not one but had his story to tell of the incredible labor, prolonged vigils, exhausting fatigues, and incessant journeys of the railway mania. Men who used to boast that in order to lodge their plans at the Board of Trade in 1845, they did not go to bed for six weeks—snatching an hour of unrefreshing slumber on the sofa, and keeping themselves awake by strong coffee and other stimulants—now sighed and cursed the folly of that mad time. The mourners at the grave of Brunel and Locke had the same personal experiences to relate, and the same unavailing regrets to utter.

One or two of the leading Parliamentary counsel of that time survive, but with shattered nerves and broken constitutions. Paralysis has struck down some of the witnesses in railway committee rooms; the lunatic asylums have received others. Lawyers, engineers, surveyors, secretaries, sharebrokers, did not and could not work in measure. And they have since paid the penalty of "too much work." The successful lawyer is greatly tempted to work too much. His professional duties are most laborious and exacting, and demand a constitution of iron. Yet it is expected of every great advocate, alike by the profession and the public, that he shall have a seat in Parliament. He can hardly escape the House of Commons, for if he should be of opinion that he has quite enough on his hands in the courts legislative, honors will be thrust upon him by some admiring constituency. As soon as he can escape from Her Majesty's Judges he doffs wig and gown, and rushes into St. Stephen's. The late hours of modern legislation seem expressly designed to kill off the Parliamentary lawyer. Bethell, Cairns, Malins, Rolt, Bovill, and other lawyers in large practice are frequently to be seen in St. Stephen's at two and three in the morning, waiting for some law Bill; yet they walk into the courts the same morning at ten, as if the night before they had gone to rest with chanticleer. Selwin, Q.C., member for Cambridge University, a rising star in the Parliamentary firmament, had prepared a long and elaborate speech last session against the Roman Catholic Charities Bill. This Bill was usually the last of twenty or thirty orders of the day; and when the clerk at the table read over the name of the Bill at two, sometimes at three, and now and then at four o'clock in the morning, the bill was postponed, without any question being put from the chair, or any fair occasion being offered of plunging into a legal definition of "superstitious uses." For a couple of months our Chancery barrister, who ought to have been at home reading his briefs, or refreshing himself by a good night's sleep for the next day's work in the Court of Chancery, sat patiently by the side of his commanding officer, Mr. Newdegate, until the House rose, waiting the opportunity of firing off his oration.

The leaders of a great political agitation sometimes break down under the excessive fatigue and waste of nervous energy, consequent upon public meetings, coun-

cils, correspondence, and travel. The man who by his "unadorned eloquence" contributed more than any other to the triumph of free trade, is now the pale, attenuated shadow of his former self, compelled to seek the balmy air of Algeria, and exhibiting in his feeble gait and languid manner the weakness of a confirmed valetudinarian. His friend and colleague, a man of burly frame and of greater vehemence suffered still more from overwork and the reäction of success. He was ordered by his physicians to withdraw altogether for a time from public life, and manifested symptoms of such severe cerebral inflammation that it was doubted whether he would ever be able again to take part in public affairs. Joseph Brotherton, Sir J. Potter, Augustus Stafford, Gooch, Jacob Bell, Fagan, Henry Fitzroy, Hildyard, F. Lucas, Molesworth, Muntz, M. T. Baines, are a few recent Parliamentary celebrities who occur to us, of whom it may be said that they died prematurely of "too much work."

Men of letters, science, and art every year, contribute to this mournful catalogue. Witness Albert Smith, Dr. Todd, Sir C. Barry, R. B. Brough, M. Jullien, among the better-known victims of 1860. Lord Macauley had the build, strength, and constitution of a man destined for long life, yet he died at sixty. The Marquis of Dalhousie was another distinguished victim of over-work. In private life, every man's experience enables him to count upon his fingers a dozen of his rivals and friends who would not be content to work with measure, who "lit the candle at both ends," and who fell, like Horner, Follett, and C. Buller, with the harvest around them, just as they had reaped a few sheaves of the golden grain. The House of Commons offers a conspicuous and fatal temptation to mercantile and professional men to work too much. The London banker finds his account in a dozen ways in obtaining a seat in the House of Commons, Rothschild, Glyn, Thomas Baring, Hankey, Gurney, Hoare, etc., tug at the oar all the day, and come down at night to write more letters in the intervals of debate. Of the lawyers we have already spoken; they are old, and, luckily for them, hardened offenders against the laws of hygiene. Country merchants and manufacturers in Parliament usually take an active part in the operations of their respective firms, and are consulted in all matters of importance. County representatives, and other country gentlemen of large estates are not exempt from the promptings of the demon of over-work, and get through an enormous amount of correspondence with brother magistrates, agents, stewards, bailiffs, gamekeepers, tenants, and dependents of one kind and another, before they enter upon the business of the nation.

Journalist M.P.'s are by no means proof against the inevitable infection. Poor Wilson used to go to a newspaper office to write leading articles and city articles after the House was up, and has been found on the floor of the editor's room in the deadly swoon of over exhaustion. Ward, the late Governor of Ceylon, edited a paper while he was secretary to the Admiralty. The late Edward Baines rose every morning at 6 o'clock during the session to answer the constituents' letters and pen leading articles for the *Leeds Mercury*. His son is said to have more than the father's activity and industry, but does not greatly commend a course of life that is evidently self-denying by any healthiness or bloom of complexion, rather appearing, on the contrary, as if he were working within an inch of his life. As for Gladstone, who, while Chancellor of the Exchequer, receives deputations, makes experiments with Sykes's hydrometer, answers the letters of any financial amateur who is not content with his speeches in the House, conducts a well-sustained correspondence with half-a-dozen Greek scholiasts on *Homer*, and writes occasional letters of forty pages to a lawyer on some nice legal point—his passion for work is a morbid disease. His nerves were so irritable and his physical man altogether so unstrung and below concert-pitch last year that Mr. Ferguson, it was said, more than once in the session could hardly refrain from walking up the floor and claiming the great orator from his colleagues on the treasury bench. Mr. Bright's physician during the reform bill discussions of last session is said to have owned a similar hankering. Sidney Herbert wisely dreads the late hours and fatigue of another session in the lower house from which Lord Robert Grosvenor, with little better health and equal wisdom, retreated a year or two ago.

The women seem to be the gainers by the excessive toil of the men. It is for them men work double tides. They live

in better house, wear finer clothes, give gayer parties, and mix in higher circles than they would do if their fathers and husbands were more moderate in their aims. Yet if women would be honest they would confess that they purchase these pleasures at the cost of many hours of *ennui* and anxiety. The wife sees little of her husband, or the girls of their father. They complain that he comes home at night jaded, languid, not seldom moody and irritable. If the young wife be of as lively social turn she is beset with danger during the long hours of her day's widowhood, as Sir C. Cresswell might, from many examples, set forth and expound. When this self-immolation is made for children the motive is so good and laudable that it seems to call for praise rather than reproof. The father overworks himself that the boy may go to Eton and Oxford, and that he may send the daughter to a fashionable school at £200 a-year. Society applauds the self denial, yet the children in the long run are not always the gainers. Indeed, it may be laid down as an axiom that, where a parent toils at his profession with an eagerness and a degree of application ruinous to his own health and spirits, the children will, in the majority of cases, have bitter cause to mourn over the imprudence. They lose, perhaps, the protecting and sustaining hand just when they are entering life and need it most.

From the North British Review.

MODERN NECROMANCY.*

Spiritualism, from whatever aspect we view it, merits a more philosophical and scientific examination than it has yet received. Millions are said to believe it. Men of considerable mental acquirements accept it, and expound it with all the fervor of believers in a new creed. Some of them are necromancers, with a deep conviction that they are in immediate communication with the illustrious dead, and from them receive revelations of a world hitherto not only undiscovered, but believed to be undiscoverable. They proclaim themselves to be, and are accepted by thousands as "mediums" of intercourse between the living and dead, and, without doubt or hesitation, set forth certain statements as the truth in regard to "spirits" and their habitat.

Less speculative and mystical, in profession at least, another class of cultivated minds accept the various phenomena of spirit-rapping, clairvoyance, inexplicable dreams, and alleged appearances of ghosts as facts, but yet beyond the ordinary observed course of natural phenomena, and as pointing to the existence of another and a spiritual world. They assume to be scientific spiritualists. They insist that it is a fallacious principle of inquiry to affirm that the facts are supernatural or impossible, simply because they are opposed to all our preconceived ideas and foregone conclusions as to the natural and possible order of phenomena. They endeavor to show that the skepticism as to the testimony of the senses, which is adopted and avowed as the rule of inquiry by physicists, is opposed to scientific progress, and has especially stood in the way of a knowledge of the immaterial and invisible. And they entertain hopes of a great advance in knowledge in this direction, if a suitable but dispassionate method of inquiry be adopted. Possibly—remarks a most able member of the school—possibly truths may have been knocking at the

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* 1. *Spiritualism.* By John W. Edmonds and George T. Dexter, M.D.; with an Appendix by Nathaniel T. Tallmadge. Eighth Edition. New-York. 1853.

2. *Footfalls on the Boundary of another World; with Narrative Illustrations.* By Robert Dale Owen. Philadelphia. 1860.

door of human faith for thousands of years, and are not destined to be taken in for many yet to come—or, at the utmost, may long receive but an unhonoring sanction from the vulgar and obscure. Perhaps, nay, probably, some mystic law, centering deep in our nature, and touching far distant spheres of untried being, runs through the undefined phenomena with which spiritualism deals—which, if it ever be ascertained, will throw not a little light upon the past beliefs and actions of mankind—perhaps add to our assurance that there is an immaterial and immortal part within us, and a world of relation beyond that pressing upon our senses. Such *verbatim*, are the aspirations of at least one eminent inquirer into these strange things.

Now, these professedly scientific spiritualists acknowledge that many phenomena, hitherto termed spiritual, are due to morbid functional activity of the nervous system; but there are others which are inexplicable by any current physical or physiological theory, and *therefore* (they say) belong to the spiritual or ultramundane; or, in other words, it is apparently assumed (and we refer more particularly to Mr. Owen's as representative views,) that the former class of theories are complete, and have explained all they can explain. Others, however, profess to think that the inquiry *may* fail to demonstrate the supernatural character of all the phenomena. This admission, however, we must say, seems to us rather a diplomatic trick, adopted for the purpose of drawing men into the observation of the phenomena, and an inquiry into them in a spiritualistic sense, for all these have a preconception of spirit existence. Hitherto the mystical has been constantly driven back with the advance of true physiological principles, so that many phenomena, of a supposed ultra-mundane character can now be traced to natural laws of action of the nervous system. Obviously the proper method of dealing with those inexplicable residua upon which the spiritualists fall back in proof of their doctrines, would be found in an extension of the method hitherto followed, and in instituting a deeper and wider inquiry into the correlations of consciousness and organization, and of the relation of mind to matter, so as to bring them within more general laws. This is the true inductive method. Now, this the spiritualists fail to do. They make no inquiry into cerebral physiology at all, except in so far as it is necessary to refute the application of its principles to an explanation of the residual phenomena with which they deal. There are the phenomena, they say to the skeptical neurologist; inquire into and explain them if you can;—themselves wholly holding back from the investigation, and even opposing it.

We learn from Mr. Owen that a society was formed in 1851, at the University of Cambridge, for the purpose of instituting, as their printed circular expresses it, "a serious and earnest inquiry into the nature of the phenomena which are vaguely termed supernatural." It was popularly known as the "Ghost Club." Most of the members, we are told, were clergymen, and fellows of "Trinity College. The bishop of —— was one of the most active, and brought it under the notice of Mr. Owen. It is remarkable that the physiological world has heard so little of this eminent club of scientific inquirers, and, in particular, of the facts they collected, and the grounds of one of the conclusions at which they arrived, namely, "that there *is* sufficient testimony for the appearance, about the time of death, or after it, of the apparitions of deceased persons." So important a conclusion from solid scientific data merits the widest promulgation. If, however, Mr. Owen's facts, and histories, and conclusions be taken as a specimen of those of the "Ghost Club," its doings have been utterly worthless, for there is nothing in Mr. Owen's book which can be admitted as even approximating to the establishment of that conclusion, or any other of the dogmas of spiritualism.

Before more deliberately examining the facts and conclusions of this spiritualistic necromancy, so far as they are embodied in the works before us, let us say one word as to the feeling which actuates us. We are disposed to recognize the importance of the inquiry thus instituted; we will most fully acknowledge that any established truths in this direction, or even any reasonable probabilities, would have our cordial respect. If men could establish, as a practical business of life, that intercourse with the departed which spiritualists profess, what a load of sorrow would often be lightened! How many hearts, now rent with anguish at the loss of wife, or child, or parent, or

friend, would be joyous with the prospect of continued communion with the dear deceased! What unavailing regrets for injuries inflicted, or love slighted, or suffering neglected, would be relieved by the certainty that the humbled survivor could atone for all the wrongs he inflicted during life, by a life-long service of incessant devotion and love to the dead! Then, again, (leaving all secular advantages out of consideration,) to obtain the support of scientific certainty for the expectation of a future and separate existence of the soul after death, in aid of a too often trembling faith and dim intuition, would be to provide a sure balm to the sorrower, and lay a firm foundation for morals. Hitherto, all those strange phenomena of apparitions, dreams, and visions, upon which mankind formerly confidently relied for proofs of the future and separate existence of the soul, have not been able to stand before the cold lights of science. No elves, or fairies, or witches, or warlocks, or wandering ghosts, or guardian angels, embodying the spirits of departed wife, or husband, or child, find a place in modern kosmic theories. Even the place of heaven itself is not mapped out either by astronomy or geology, and nothing is left but a simple faith in Divine truth and Divine intuitions. How gladly would the evidence of sense be received by many, in support of such things. What groans and sighs are often needed ere the grieving heart can attain that "sure and certain hope" which is the triumph of Christian faith! Welcome, indeed, would be the alleged facts and truths of spiritualism, if they brought with them only a portion of the palpable certainty which attaches to the most imperfectly-developed departments of modern science. But, on investigation, they are found to be only dust and ashes, a delusion and a snare.

Nevertheless, science should strengthen faith, and be the handmaid of religious truth. Mental science may, however, be said to have hardly begun, in so far as it relates to that wonderful kosmos of mind of which every human head and heart consists, albeit a *microcosmos*. Within that world of life and thought, what undiscovered laws may not lie concealed! what great truths may be dormant! Surely, if the natural be so wonderful and strange as to mimic the supernatural, it would be well to begin with the possible in inquiry, and first sound the depths of human THOUGHT, in its relations to the great laws and forces of LIFE; for, just as the mind of man advances in knowledge of physical phenomena from the known to the unknown, so must it advance in the knowledge of metaphysical phenomena. And although the erroneous basis of a true belief be thus struck away, faith will only get the surer foot-hold on positive knowledge, and the chilling, cruel fears of superstition be dispelled.

The work on SPIRITUALISM is probably the most favorable example of modern necromantic literature. Mr. Edmonds is a United States Judge, Dr. Dexter a United States physician, and Mr. Tallmadge the governor of Wisconsin, and formerly a Senator of the United States. It professes to give revelations, made through Dr. Dexter, by Swedenborg, Bacon, and others, as to the habitats, natural history, polity, etc., of spirits. The spirits were never visible, but made their communications by influencing Dr. Dexter's hand to write in Judge Edmonds' library, in answer to questions asked, and signing, through him, their dictations. The style of composition corresponds, we are told by Mr. Edmonds, to the style of the illustrious departed, while even the hand-writing of Dr. Dexter varied as the spirit-visitant. No doubt was ever entertained that the pathological processes of which Dr. Dexter was the subject, were other than the result of the direct influences of the spirits of the men mentioned; and yet the whole of the facts proper, even as stated by themselves, point most conclusively to a morbid condition of the nervous system as the cause of the phenomena. A notional hallucination, in short, constitutes the foundation upon which the whole structure of doctrine is built up. To set forth the proof of this proposition, let us observe, that the specimens of writing indicate clearly that the various styles were merely modifications of Dr. Dexter's ordinary hand-writing (for a specimen of this also is given,) under the influence of a morbid action of the brain. The prevalent character of one or two of these shows that the muscular or motor system participated occasionally in the morbid state. It is well known that the hand will both write and draw automatically under certain morbid conditions of the brain, the patient being either conscious or unconscious at the time, just as the

tongue will speak automatically. We know a lady in whom this automatic dexterity can be easily induced, by inducing a morbid state of the nervous system, so that her hand will move and write quite irrespectively of any volition on her part. When the state comes on, she is warned of its approach by a spasmodic feeling about the chin. This and similar phenomena are due to an automatic action of the brain, as the seat of the ideas and thoughts, just as various regular convulsions of groups of muscles are due to automatic action of the spinal marrow, and its continuation into the brain. A few extracts will suffice to show the symptoms of Dr. Dexter's "case," and indicate the nature of his hallucination and morbid automatic action, and the development of the disorder.

First, as to the hallucination, and the involuntary or automatic character of his writing:

"It was not until I had become fully developed as a writing medium, against my will and determined efforts to the contrary, that I yielded an implicit faith in the truth of the spirit intercourse with man. . . . I were more than a man to refuse still to believe, when I was a living, acting evidence, that through me, and against my will, spirits possessed the power and ability to write their thoughts and express sentiments and ideas as much opposed to the ordinary actions of my mind as if it were another person. . . . Let it also be understood, that the spirit-manifestation by my arm is absolutely involuntary. I have no direction in the act. My muscles are the medium of spirit-communication, not my thought," etc.

Like all persons with this form of hallucination, Dr. Dexter had others of great pathological significance, which occurred immediately before or during sleep:—

"After their concerted and continued attempt to impress me had passed over, I refrained from visiting circles, and thought, by staying away, I might be free from any impression; on the contrary, my arm would be moved when asleep, and awake me by its motion. During the time I abstained from sitting in any circle, I was twice lifted bodily from my bed, moved off its edge and thus suspended in the air. The first time I was so dealt with, I had retired to a different room from the one I usually occupied. I had not been asleep, and was conscious of every thing around me. As I lay composing myself for sleep, I discovered my whole body was trembling in every fiber [*sic.*] I attempted to raise my hand, but I could not move; my eyes were closed, and the lids fastened. My mind was unusually active, and I noted every thing which took place with an intenseness of perception I never before experienced. My bodily sensation was likewise increased in power. As I lay there, unable to move a limb, my body was lifted from the bed, and moved gently towards the edge, with the bedclothes over it; there it remained a moment, and then it was moved off the bed into the room, suspended in the air, and there held for an instant. [Hallucination of relation to space.] Just at this time the fire-bells rung an alarm, and my body was suddenly brought back to the bed, and deposited in the same place I had previously occupied, with a sort of jerk, as if it had been dropped from the power that held it. [The dream broken.] I immediately recovered my power of locomotion, and arose from the bed and examined the clothes, and found they had been drawn over toward the side where I had been lifted, and were trailing on the floor.

"I was deeply moved at this special evidence of spirit-manifestation. . . . For the first time it occurred to me, that, perhaps, in this evident design to develop me as a medium [notional hallucination of suspicion,] I might, by submitting to their direction, arrive at the whole truth of spirit intercourse with man. I felt impelled to ask if there were spirits in the room. Three distinct raps were given in reply, indicating they were present; and then, too deeply agitated to question further, I again returned to bed to ponder," etc.

In short, the hallucinations gradually became more fully developed, and he began to find out that his hand "was seized and made to write." And the mode of development of this automatic movement is significant:

"I was sitting alone in my office, late at night, and was leaning back in a rocking-chair. . . . As my hand lay on the arm of the chair, I felt a singular sensation in the whole limb, as if the arm were grasped by two hands at its upper part [hallucination of touch.] I attempted to raise it, but was unable so to do; and as soon as I made the effort to move it, the fingers were bent down tightly on the arm of the chair, and grasped it firmly [a spasmodic contraction of the fingers.] Immediately the hand began to tremble, and as I watched the movement the whole limb was shaken violently At this moment I heard two loud raps at the upper part of the side wall of the room [hallucination of hearing;] and it then occurred to me, that this unseen power, whose manifestation I had so often witnessed [in circles of inquirers,] was in some way operating upon me [notional hallucination from suggestion.] To satisfy myself, I asked in an audible voice, 'Did the spirits just rap?' There were three distinct raps in reply. I then asked, 'Are the spirits trying to influence me?' Again there were three distinct

raps. At this I arose from my chair, arranged my books, and then retired," etc.

Every physician familiar with the hallucinations of the insane, can recognize morbid phenomena in all these. Corporeal hallucinations of floating, etc., spectral sounds, and suspicions of unseen or mysterious agencies, are commonly associated in certain forms of maniacal melancholia. In Dr. Dexter's case, they came on late at night, when sitting alone, and when he was just entering, or already in, the first stage of sleep, a condition which always highly predisposes to irregular action of the brain, if it be not in the great majority of cases one of actual incoherence of ideas (dreaming.)

Dr. Dexter and Mr. Edmonds affirm most emphatically, that the style of Dr. Dexter's compositions corresponded to that of the "spirits" by whom he was thus involuntarily dealt with. That would have been nothing remarkable, if Dr. Dexter had been already familiar with the works of Bacon. But the converse is certainly the fact. Hence the assertion (itself founded on an hallucination,) in common with many others, serves to show how utterly unfit these persons are to observe and compare even the most ordinary phenomena. Otherwise, we should be shocked to find that the English of the great Chancellor of England has degenerated in the "spirit-world," as well as his love of truth. We find, for example, that when Lord Bacon was in the full flow of his communications, and telling Dr. Dexter how to comport himself towards those who deny the phenomena and conclusions of spiritualism, his advice was, that there should be a "grand dignity" in Dr. Dexter's answers, and a "moral personification" of his communion with spirits. Again, Dr. Dexter took the great liberty, we must say, of asking Lord Bacon to stop, while he should "read to Judge Barbour some of Swedenborg's communications." Lord Bacon was good enough to say, in his polite way, "that he was always instructed by anything from Swedenborg;" but after listening to that great ghost's opinions for half an-hour or so, he said, "I *guess* we will all go home, and so good night." We can understand Lord Bacon yawning, but the parting salutation looks more like a hint from Dr. Dexter himself to Governor Tallmadge and Judge Barbour to be off, than the pure idiom of the author of the *Advancement of Learning*. Be this as it may, they acted on the hint, and he came back to the doctor and the judge (who remained in "cosy" conversation till after midnight,) and moved the former, in answer to a question of Mr. Edmonds, to write as follows:

"Sleep? Certainly, Judge, how can our bodies support the tear and wear of life without sleep? But the nearer I approach those I love, the more I identify myself with their present feelings. Thus, I feel inclined to-night to be cosy with you two, and to open my heart, and tell you of its high and noble aspirations, to tell you with what joy I shall wend my way to those worlds spoken of by Swedenborg, when I shall have accomplished the object for which I now labor."

The main object of Bacon and Swedenborg seems to have been to instruct Dr. Dexter and the deluded judge and governor, and their friends, in the doctrines of spiritualism, and the best modes of propagating them. With that total defect of power to perceive the incongruous, which characterizes the insane affected with this class of hallucinations, Dr. Dexter and his friends can perceive nothing extraordinary in the circumstances, that he, an obscure transatlantic physician, had been selected by the greatest deceased philosopher of Europe as the medium of his modern speculations in ghostdom, and that he should adopt a Yankee idiom to express them. It is curious to note the particulars of Dr. Dexter's "case" in other respects. When the hand acted at first automatically, the writing and the ideas were equally imperfect, as is the case in all this class of hallucinations. The earlier attempts expressed a single idea, and could hardly be deciphered; while it was only after some practice that the writing became rapid, bold, and easily read. The "patient" knew nothing of what he had written until it was read to him, and even then the matter wholly passed from his memory. At first it was necessary he should "sit in a circle" before his hand would write, and even wait an hour or two; but practice made perfect, and as his susceptibility increased, the impression was felt almost as soon as the circle was formed. The morbid state would also come on when sitting alone at night, or during the first sleep, when he was compelled to write. In all these circumstances we have the usual conditions of morbid phenomena.

Let us now turn to the history of Judge Edmonds as given by himself, and we learn the history of his "case," as one of monomania also:

"It was in January 1851 that my attention was first called to the subject of 'spiritual intercourse.' I was at the time withdrawn from general society; I was laboring under great depression of spirits (melancholia.) I was occupying all my leisure in reading on the subject of death, and man's existence afterward. I had, in the course of my life, read and heard from the pulpit so many contradictory and conflicting doctrines on the subject, that I hardly knew what to believe. I could not, if I would, believe what I did not understand, and was anxiously seeking to know if, after death, we should again meet with those whom we had loved here, and under what circumstances. (Speculating on ghosts and ghostdom.) I was invited by a friend to witness the 'Rochester Knockings.' I complied, more to oblige her, and to while away a tedious hour. I thought a good deal on what I witnessed, and determined to investigate the matter, and find out what it was. If it was a deception or a delusion, I thought I could detect it," etc.

This is the usual course of development of disease in these morbid mono ideists. They have an entire and unwavering conviction of their own cleverness, and their ability to detect fraud or explain phenomena, however remarkable and obscure. No suspicion ever crosses their mind, that at least some knowledge of the laws of action of the brain and nervous system is needed in these cases; and they are therefore speedily bewildered in the quagmires of superstition, mysticism, and deception. As his mental state became worse, Mr. Edmonds experienced a class of hallucinations of touch, and other sensations very common in persons affected with a morbid suspicion of mysterious agency, as of galvanism, electricity, secret wires, and the like. In Mr. Edmonds' case, the agents are spirits, and, as usual, manifest their influence at night:

"To-night, after I had gone to bed, and while I lay reading, according to my usual custom, I felt a touching on my left thigh, which I at first thought was the twitching of the muscles, which all will at times experience. It continued, however, so long, and with such regularity of intervals, that I began to think it could not be from that cause. I accordingly put my hand down by the side of and upon my thigh, and the touching ceased. The moment I withdrew my hand it was renewed. This I did several times, always with the same result. I then altered the position of my hand. . . . The touchings of my thigh were renewed; and not only that, but there was a feeling on the top of my hand and across my fingers, as if that which touched my thigh had passed across my hand and touched each finger as it passed. It seemed like a stream of electricity passing across and touching my hand, and then touching my thigh with a spot about as large as my little finger. . . I determined to ascertain if it was intelligent. I asked a question aloud. While I was asking, the touching ceased; and when my question was put, my thigh was twice touched, with distinct intervals. I repeated the question mentally, with the same result, only the answer was then given by three distinct touches," etc.

Then this poor gentleman had "a stream of touchings," from his left big toe, running up and down his leg several times, and finally touchings near his loins on the left side, very gently and at intervals, until he fell asleep. Between twelve and one, a few nights afterwards, he had a renewal of the touchings. The time and character of these phenomena are perfectly characteristic of the class of hallucinations to which they belong. No "expert" (not tainted himself by necromancy) would fail to recognize the true nature of the case. It is not surprising, then, that in this state Judge Edmonds believed firmly in the most extraordinary assertions of spirit-mediums, clairvoyantes, and the like, and listened to Dr. Dexter's mad Yankee travestie of Lord Bacon's "style" with all the satisfaction of a brother lunatic.

As a pathological revelation of mono-ideistic insanity, this big book is very curious; as a revelation of new truths, we hardly need say it is a tissue of absurdities. Perhaps some apologetic explanation is needed for this serious investigation of the phenomena of spiritualism, when obviously the easiest method would have been to treat the whole thing with ridicule and contempt. Already, however, this method has been followed to the fullest extent; and it seemed far more useful to the numerous victims of these delusions, as well as to society at large, to accept the challenge of these necromantic lunatics to examine the phenomena of spiritualism in a serious and scientific spirit. The honest conclusions from the facts we give; and we find that Dr. Dexter and other so-called "mediums" write with a certain coherency, nothing more than their own incongruous aberrations.

Dr. Dexter is, doubtless, convinced that

he is in communication with Lord Chancellor Bacon and Swedenborg as their amanuensis; but then stern science compels us to doubt the accuracy of Dr. Dexter's convictions. If convictions of that kind are to be adopted without further question, and made the starting-point of "scientific" inquiries, we should have as many "ultramundane" truths as there are "crazes." Our asylums (as we happen to know) offer multitudes of instances of men who have as strong convictions upon particular topics much less improbable than those of Dr. Dexter. But the stronger their convictions, unfortunately for them, the more prolonged their detention under treatment as lunatics.

It will, doubtless, be alleged that our diagnosis in these cases is erroneous, because Dr. Dexter and the Judge can, and do, perform the usual duties of their vocations in a sensible, rational way. Upon this point there may be some doubt, and, so far at least as it regards the Judge, less than doubt; for, according to his own showing, his legal decisions have been publicly impugned and denounced, because founded on necromancy. But allowing the full force of the objection, it is no more than what is constantly seen in similar forms of insanity. So commonly is this the case, that it is sometimes difficult, in the most confirmed and unquestioned cases of monomania, to obtain such evidence from the conversation of the patient as is sufficient for diagnosis. And what applies to speech, equally applies to writing. We have known lunatics, with the most decided and absurd hallucinations, to be perfectly coherent in composition. Persons are occasionally observed to write letters, for example, in the midst of the most incoherent words and actions, without introducing anything that could indicate the then state of mind of the writer. Nay, in the commencement of certain forms of insanity, in individuals of naturally dull intellect, the morbid change is not indicated by any perversion of the intellect whatever, but only by an exaltation of the mental powers, with greatly increased activity.

Nevertheless, these mono-ideists are always to be considered unsafe persons, and should never be trusted with any responsible duties, inasmuch as whenever, in the exercise of these, they come across their "craze," there is no longer mental soundness, and the most absurd acts may be done. It is certain, too, that the same causes which have operated to develop the monomania, have a tendency to widen the sphere of morbid action and develop mania. We lately, when visiting a large public asylum, observed the bust of one who must have been of a high order of intellect. It was that of a gentleman who had died an inmate of the institution, and who had been rendered insane by mesmeric manipulations. And it is a fact, that many of the persons who constitute the circles of the spiritualists, and of similar sects of the mystics, are either insane or on the verge of insanity. Hence our practical conclusion, that this work, like all others of its class, should be a warning to ignorant minds and weak heads how they venture to deal with things beyond their powers.

The work of Mr. Owen is of another stamp. Although of feeble judgment, yet, like all believers of his class, he is cunning enough to see that his book will be received by the thoughtful and cautious as an attempt to revive popular delusions which modern science has long since dispelled; and hence he labors hard to give his work a scientific, candid, and practical character. While he maintains the orthodox tendencies of his inquiries, he affirms that in this direction his book has already favorably influenced the skeptic. On the other hand, with much parade of learning and an overwhelming assumption of candor, he seems to admit the physiological explanations of the phenomena he examines, and goes even so far as to attempt to discuss dreams, hallucinations, and spectral illusions in a scientific and philosophical spirit. Nay, he undertakes to explain away some favorite stories by physicians; yet, while he admits candidly on the one hand, he doubts much more strongly on the other. The result of his method, in short, is to leave an impression on the reader's mind, that even ordinary dreams *may* have something in them ultramundane, while (in fact) he only ventures to affirm that exceptional dreams are of this class.

It is very obvious, however, that Mr. Owen has no such knowledge as will enable him to distinguish ordinary from exceptional dreams,—hallucinations and delusions from visions and spirit-promptings,—or the metaphysical phenomena of spirit-rapping from the physical. Every page of his book proves to us that he is neither

physicist nor metaphysician, physiologist nor neuro-pathologist. He is a man of a sophistical temper, with some knowledge of the world, who has got bewildered by the doings of modern necromancers and weak people, and who seeks to establish foregone conclusions in the mode best adapted to catch converts. A book so mischievous in its tendencies requires to be dealt with in a way most likely to counteract it. We therefore propose to examine some of the histories therein given.

But we have first to examine the important preliminary question of evidence and of belief in the testimony of the senses. It is always a matter of surprise to a man when he first encounters a monomaniac, and finds all his arguments utterly powerless against a fixed idea, the absurdity of which must (he thinks) be apparent to a child. He fondly imagines a few plain facts will suffice to set the aberrant intellect right, and it is only experience which at last convinces him how utterly hopeless is the attempt. Now, this aberration from healthy mental action is essentially of the same kind as the healthy action itself; it is developed according to the same laws, and has its seat in the same tissues. It is only, in fact, a morbid species of the natural *genus* error. How, then, does erroneous belief arise?

A cursory examination of the leading facts of consciousness in relation to the organization, suffices to establish the fundamental principle, that the belief of an individual is bound down to those conditions of the organism upon which consciousness itself depends. For example, in that mental state termed corporeal pain, it is not in the choice of the individual whether he shall feel pain or not, when the ordinary causes of pain are applied; so also, when the brain is duly active can he choose whether he shall think or not. Concurrently with the incessant successions of vital changes in the organism, there is dependent on them an equally incessant series of successive states of consciousness; so that, to modify the latter effectually, the former must be modified. Hence, practically, no better means are known for this purpose than the use of drugs which act directly on the brain, as alcoholic drinks, opium, haschisch, and the like. Chloroform will extinguish pain, but then it will also induce transient mania. This being the law, if the vital changes thus concurring with mental states correspond accurately to those induced by external things, the individual knows truly as to external things; but if not, then he labors under error regarding them.

Now, this exact correspondence of external things to internal sequences is a thing of such difficult attainment, that perhaps it is never attained. For, in addition to well-trained organs of sense, there must be a perfect organ of perception and comparison. And this is rare, for hardly any man addresses himself to the observation of things without some bias from a preconception of foregone conclusion; so that the result of his observations and comparisons is not a pure conception of things as they are, but a *tertium quid*, compounded partly of the perceptions, partly of the perconceptions or prejudices. The result of *error* in a man with a healthy brain; *hallucination* in one with diseased brain.

There has been so much vague discussion as to the true nature and origin of hallucinations, and so much imperfect knowledge elicited, that an illustration or two of their true character may be useful. A person in delirium, or even in the state between sleep and waking, if there be disorder of the brain, may fix his eye upon a visual object, say a shadow on the wall. This shadow, when looked at, does not, under the existing morbid condition of the brain, excite the ordinary changes in the organ of perception, so as to be recognized as a shadow; but other changes, such that it appears to the looker to be another object—as an animal, demon, man, instrument, or the like. Should the individual be able to determine the true character of the phantasm, by comparing his *present* experience with the past, or by experimental inquiry, as examination by the touch or otherwise, he has been the subject of a *spectral illusion;* but if he is not able, from the condition of his brain, to compare his past experience with the present, and so determine the falsity of the spectral illusion, he believes in its reality, and labors under an *hallucination*. A real object is thus transformed into a delusive object by the operation of a morbidly active brain, put into activity, however, by the impression of the object itself. Now, this is the condition in a vast number of insane persons, and in a great variety of morbid states not insanity.

But the morbid changes may not be

thus excited from without; on the contrary, they may arise independently of all external impressions. Such are the illusions and hallucinations excited in cases of poisoning by various drugs, in epilepsy, in delirium, but especially in sleep. In those instances, the illusions and hallucinations have often no reference to external things. There is no comparison of the knowledge obtained through the senses or by experience, with the illusions of morbid action; and, consequently, the latter are regarded with all the intensity of earnest conviction. It is thus that in sleep, when the senses are shut, and past ideas are confusedly presented as a present reality (*i. e.*, as an hallucination,) that the wildest beliefs possess the man, so that he will even superintend his own interment, in the belief he is dead, without any perception of the incongruities of the notion with experience. Such hallucinations are very common in delirium, somnambulism, and other morbid states allied to dreaming. Perhaps the most typical of this class are the dreams of nightmares, etc., arising from indigestion, irregular circulation through the heart, lungs, etc., when the external senses are wholly shut.

Practically, however, no such sharp line of demarcation can be drawn between these various forms of illusions, hallucinations, and delusions. Thus, when Dr. Reid had a blister applied to his head, he dreamt he was being scalped by Indians; the dream-hallucination was manifestly excited by the pain of the scalp caused by the blister; and the senses being shut, no correction of the hallucination could be made. But if Dr. Reid had been insane, and had had a blister so applied to the scalp, he might, when awake, have mistaken those about him for the very Indians of whom he dreamt, and struggled violently to escape from his imaginary tormentors. This would have been a maniacal hallucination or delusion. In either case, it is to be noted, the belief in the reality of the hallucination is equally strong, so long as that cerebral condition continues, upon which the hallucination and the defect in correcting power both alike depend.

Now, it is obvious, that it is by no means necessary these delusions should have regard to the absurd and impossible alone; that, it is true, is the manifestation most commonly observed, because it is the most striking, and because hallucinations as to ordinary events would never be suspected to be such; they would only be looked upon as extraordinary errors in observation, or as contradictory evidence, unless, indeed, the subject of them manifested other symptoms of disordered intellect. This class are, however, of very serious import when the hallucinations are received as evidence in courts of law, and life and character depend upon the discovery of their true character. The criminal annals of this country and, indeed, of all countries, abound with illustrations of the danger of receiving the evidence of hallucinated persons, whether regarding themselves or others, as to murders and other crimes. It is notorious, that hardly an undiscovered murder occurs in this country, of such a character as to excite the imagination, but that some unfortunate imbecile surrenders himself to justice as the perpetrator, giving all details of the crime he committed, as to time, place, and other circumstances, all which are wholly hallucinations. And in the days when the belief in witchcraft and intercourse with Satan was universal, it was rather the rule than the contrary, for the women who were accused, to confess to their intercourse with the devil, with all particulars detailed in accordance with the superstitious imaginings of the time. In fact, this was simply what might have been expected. These poor creatures themselves highly credulous, and most orthodox believers in the current dogmas of demonology and witchcraft, were thrown into noisome prisons, tortured, prevented sleeping, and deprived of food and drink, until the brain gave way; and then all the imaginings which the credulity of the times developed and expanded became realized in their morbid organisms as hallucinations.

But, perhaps, the most painful consideration is, that the credulous wretches who believed themselves or their children to be the victims of witchcraft, became the subjects of hallucinations, as to the practices of wholly innocent men and women, and boldly swore as to things done by them which were simply impossible. Many thousands perished throughout Europe by the hands of the executioner, or died under miserable tortures, upon no better evidence than the hallucinations and delusions of credulous persons with

an impressible nervous system; such, indeed, as happily now believe in the less dangerous but equally morbid phenomena of modern necromancy.

Our modern courts are not wholly exempt from the dangers of hallucinated evidence, although in a less striking form than when it was founded on mysticism and superstition. Early in the morning of the thirtieth of April, 1857, the body of Eliza Hopley was found in the canal at Bradley, Wiltshire. The body presented no marks of violence, and it was believed that she had fallen accidentally into the water. In about three weeks after, a neighbor, named Samuel Wall, declared that she had been murdered by one Philip Clare, and that he had witnessed the murder. He gave all particulars as to the time, place, mode, his conversation with Clare, and the threats of violence which the latter uttered; all of which were proved, on the trial of Clare, to be wholly groundless. The celebrated Campden murder, in which the supposed murderer was executed on hallucinated evidence, is another illustration of this kind. Indeed, such examples might be multiplied to almost any extent.*

A few facts as to this class of phenomena may be useful in the explanation of many of these ghost stories.

Delusions, hallucinations, and illusions, will vary in character according to the seat of the vital changes upon which they depend. Hence there are illusions and hallucinations of hearing as well as of vision, of smell, taste, touch. The feelings of floating, rising in the air, being reversed, and the like, so common in feverish sleep, constitute what may be termed corporeal illusions and hallucinations. They are very common in the nervous, and hysterical, and insane, and are evidently experienced by "mediums." Some of this class are very curious. We have known persons who felt as if their body was as large as the Pentlands; that their head was of enormous size; that their arms were indefinitely expanded; that they took enormous strides. Persons who have lost a limb are apt to have the illusion that it is still a part of their body, and even to suffer spasms and pain, referred to particular muscles and joints in the missing member.

Curious hallucinations as to personal identity are very common. In dreams, the arguments held with another person, are in reality the arguments of the individual himself. A man may thus defeat himself in debate, or in a combat of wit. A gentleman dreamt that a friend of his looking at a piece of black cloth on the table, asserted that it was of a *flesh color*, This the dreamer disputed, and maintained it was black; and at last a bet was laid on the point, when the friend remarked, "Is not *black* the color of half the human race?" whereupon the dreamer felt completely abashed, that he had not seen the point; yet the wit was his own.

This kind of mental condition, as to a duplex consciousness, that is, of self as self, and self as another person, is not an uncommon hallucination in the insane. It has also characterized the mental state of men of such highly developed powers as to trench on the line of morbidness. Tasso firmly believed that a familiar genius conversed with him. One day he proposed to convince his friend Manso, who maintained it was an illusion, of the reality of the thing, by showing it to him. On the following day, the friends being seated near the fire, Tasso turned his eyes towards a window, on which he fixed them so attentively, that he ceased replying to Manso's remarks, and probably did not hear them. At length, he said, "There is my familiar spirit, who is so polite as to come and converse with me; look at him, and witness the truth of what I told you." Manso turned his eyes towards the spot indicated, but saw only the rays of the

* "The Campden murder," and other cases, may be found detailed in *Blackwood's Edinburgh Magazine* for July, 1860, in an article entitled "Judical Puzzles," in which this kind of false evidence is ably illustrated. It is difficult to avoid the conclusion, that much innocent blood has been shed judicially, and much misery inflicted in consequence of undetected hallucinations being received either in evidence or as confessions of guilt, and that this department of the science of testimony merits the most careful inquiry, from a physiological as well as metaphysical point of view. And, in reference to our present subject, when so much stress is laid by the spiritualistic writers upon the testimony of the senses, and the dangers to society which may result from doubting it, it may be set forth at least as a sound principle, that all phenomena of an alleged supernatural or contradictory character, occurring under conditions of the nervous system which experience has proved to be morbid, are probably themselves morbid, and belong to the class of illusions, hallucinations, and delusions. In such a category must be specially included all dreams, nocturnal visions, and inspirations of persons with manifest disorder of the organ of consciousness, however induced.

sun streaming into the room. Whilst he gazed all around, he perceived that Tasso was engaged in deep conversation, and his discourse was arranged as if two persons were conversing; he alternately interrogated and replied. During this state Tasso's mental faculties were highly developed, for Manso reports that the conversation was so exalted, and the style so sublime and extraordinary, that he was astonished beyond measure. This kind of exaltation sometimes accompanies the hallucinations of the "mediums" of the spiritualists, and is, in fact, one of the chief characteristics of the morbid conditions known as ecstacy, clairvoyance, and coherent delirium, of which hallucinations are strongly marked elements. Thus Mr. Edmonds observes:

"I pass to another consideration which has much weight with me, and that is, the remarkable manner in which the distinctive characters of those professing to converse with us are delineated and preserved. Thus, through a female, gentle, simple, unsophisticated, of not much education, and with no ordinary powers of mind, I have received communications purporting to be from different persons, each bearing the distinctive characteristic of the person professing to speak, each different from the other, and none of them like the qualities of the mind of the medium. It was impossible for her to fabricate these manifestations," etc.

So thought Judge Edmonds, in his entire ignorance of cerebral pathology. What to the mono-ideistic spiritualist is a spirit, to another class of persons is a "genius," the devil, or voices. Thus, a lady one day observed to M. Brierre de Boismont, "Voices suggest expressions to me with which I am not familiar; they give me words much superior to those I have been in the habit of using, or which my education justifies. Their conversation often runs on geography, politics, and domestic economy, questions to which I am a stranger, but which I perfectly comprehend when the voices suggest them." Mr. Mayo mentions a clairvoyante who gave a learned discourse on some scientific subject: it was taken down, and found to be a page, *verbatim*, from the *Encyclopædia Britannica*.

This hallucination of another personality takes other forms of a singular character. For example, an individual will have the feeling of another person being attached to him, or that he is made up of two bodies; we knew a case of this kind, in which the two bodies were felt to fight with each other. Another corporeal hallucination is, that a person believes every thing he suffers is really felt by another person; or that which really endangers him, endangers not him, but some one else. Thus, a woman we know is in terror when she goes down stairs, lest—not that she—but some one else, should fall headlong. This kind of condition may be observed in delirium accompanying cases of injury to the body, when the patient attributes his own sufferings and groans to another person. M. Descuret mentioned a case to M. Brierre de Boismont of triple personality. The subject of it was a clergyman, who, in every position, saw himself thrice repeated; when he turned in bed, the two other persons turned with him, and placed themselves upon him. In this case it may be said that each half of the body had a distinct personality, as well as the two halves unitedly. To this group of hallucinations belong all those of spirit-possession.

The various illusions or hallucinations which may be more strictly denominated mental, are *delusions*. They either refer to things or the causes of events, or both. Whatever is in the memory, or is desired, or feared, or expected, or anticipated in thought, may be realized subjectively* as an illusion or hallucination. Thus, the traveler suffering from thirst in the arid desert, dreams of verdant fields and gushing streams. Thus, also, the man who desires earnestly to see a departed friend, may at last evoke a hallucination of his personal appearance. An instance of this kind is related by Mr. Owen. It is a curious story, as illustrative of the coincidences which impress the mystical so strongly. It is entitled

"The Fourteenth of November.

"In the month of September, 1857, Captain G—— W——, of the sixth dragoons, went out to India to join his regiment. His wife remained in England, residing at Cambridge. On the night between the 14th and 15th of November, 1857, towards morning, she dreamed that she saw her husband looking anxious and ill; upon which she immediately awoke, much agitated. It was bright moonlight, and looking up, she perceived the same figure standing by her bed-

* That is, in consequence of changes in the *subject* of the mental state, independent, partly or wholly, of an external object.

side. He appeared in his uniform, the hands pressed across the heart, the hair disheveled, [*sic*] the face very pale. His large dark eyes were fixed full upon her; their expression was that of great excitement, and there was a peculiar contraction of the mouth, habitual to him when agitated. She saw him, even to each minute particular of his dress, as distinctly as she had ever done in her life; and she remembers to have noticed between his hands the white of the shirt-bosom, unstained, however, with blood. The figure seemed to bend forward, as if in pain, and to make an effort to speak; but there was no sound. It remained visible, the wife thinks, as long as a minute, and then disappeared.

"Her first idea was to ascertain if she was actually awake. She rubbed her eyes with the sheet, and felt that the touch was real. Her little nephew was in bed with her; she bent over the sleeping child, and listened to its breathing. The sound was distinct, and she became convinced that what she had seen was no dream. Next morning she related all this to her mother, expressing her conviction, though she had noticed no marks of blood on his dress, that Capt. W—— was either killed or grievously wounded. So fully impressed was she with the reality of this apparition, that she thenceforth refused all invitations.

"It was on a Tuesday, in the month of December, 1857, that the telegram regarding the actual fate of Captain W—— was published in London. It was to the effect that he was killed before Lucknow on the *fifteenth* of November. . . . . So matters rested until, in the month of March, 1858, the family of Captain W—— received from Captain G—— C——, then of the Military Train, a letter dated near Lucknow, on the 18th of December, 1857. The letter informed them that Captain W—— had been killed before Lucknow, while gallantly leading on the squadron, not on the fifteenth of November, as reported in Sir Colin Campbell's dispatches, but on the *fourteenth, in the afternoon*. Captain C—— was riding close by his side at the time he saw him fall. He was struck by a fragment of shell in the heart, and never spoke after he was hit."

It appears that the date of this officer's death was, in fact, wrongly stated by the authorities, and was subsequently corrected; but there is nothing remarkable in the lady's tenacity of belief as to the proper day. She had accidentally a dream during the night of the day when her husband fell, out of which she awoke to have it continued as an hallucination. The coincidence is curious, but there is no cognizable relation of cause and effect between the event and the dream. No doubt the cause of the dream (which is wholly omitted from the history) was the anticipation of danger to her husband, which would be excited very naturally under the circumstances, and felt most at that date; for she would doubtless calculate the time of his arrival on the field of action, and thus her vague imaginings would take a more decided form just at the time when he was first incurring the dangers of his career. There is really nothing surprising in the coïncidence, when the order of events is known. On the other hand, it must be remembered how many myriads of presentiment-dreams and hallucinations are experienced without any such coïncidences occurring. Such, for example, is the following. It is quoted by Brierre de Boismont from the *Mercure Galant* of January, 1690:

"The best proof, my friend, that I can give you of the vanity of dreams, is that I live after the apparition which I had on the twenty-second of September 1679. On that morning I awoke at five o'clock, but slept again directly. I now dreamed that I was in my bed, and that the covering was withdrawn (an accidental circumstance, but true.) I saw one of my relatives, who had been dead some years, enter my room; she, who was formerly so lively, now looked very sad. She sat down on the foot of my bed, and looked compassionately on me. As in my dream I knew she was dead, I judged by her distressed look that she was about to announce to me some bad news, perhaps death. Indifferent to that event, I said, 'Well, I must then die!' 'It is true.' 'When?' 'To-day?' I own that the time seemed short, but without any fear I questioned her anew: 'How?' She murmured some words that I could not catch, and I awoke.

"The importance of so peculiar a dream caused me to examine attentively my situation. I observed that I was lying on the right side, my body straight out, and my hands on my stomach. I arose to write down my dream, lest I should forget it; and finding that it contained all the circumstances peculiar to divine and mysterious visions, I was no sooner dressed than I went to tell my mother-in-law, that if serious dreams were infallible warnings, in twenty-four hours she would cease to have a son-in-law. I then related to her what had happened; I also repeated it to some of my friends, but without feeling the least alarm, or changing my habits, yielding myself to the will of Providence. Perhaps, had I been weak enough to believe in this vision, I should really have died; and my fate would have resembled that of the man spoken of by the Greek historian Procopius; I should have lost my life as a punishment for my belief in dreams, a superstition forbidden by God."

This kind of presentiment as to a future event, is not uncommon in ecstasy, clairvoyance, and somnambulism, as well as in

dreams; and it can not be doubted, that if the individual yields to it, there is a great probability that it will work its own fulfillment. So also is it with fears as to the "evil eye," as to witches, prophesies of evil, and the like. Thomas Britton, whose portrait hung some years ago as No. 113 in the British Museum, was a musical genius of the last century, and being a coal merchant, was nicknamed "The Musical Small-Coalman." His cause of death was a striking example of the power of suggestion over life itself. Being at a dinner party, a ventriloquist present, for the sake of a jest, predicted his death would occur that night, in such tones, and such a manner as deeply to impress his imagination. He immediately left the table; and in spite of all the assurances of his friends, believed the voice he heard was ultra-mundane. He did die that same night. So true is the old saw, "Conceit (*i. e.*, imagination) can kill, and conceit can cure."

Mr. Owen fortifies the deduction drawn from the hallucination of the officer's wife coïnciding in time with the officer's death, by trying to establish another conïcidence of the same kind between the hallucination of a "medium" and the fatal event. Mrs. M—— had "all her life had perception of apparitions," and her husband "is what is called an impressible medium." The lady's solicitor (Mr. Williamson) related the vision and the coïncidence to these two persons as "a wonderful circumstance," and described the figure as it had appeared to her. The story had the immediate effect of a suggestion on their morbid organizations. "Mrs. M——, turning to her husband, instantly said, 'That must be the very person I saw on the evening we were talking of India, and you drew an elephant with a howdah on his back. Mr. Williamson has described his exact position and appearance; the uniform of a British officer, his hands pressed across his head, his form bent forward as if in pain. The figure appeared just behind my husband, and seemed looking over his left shoulder.'" They got into conversation with the specter; and the ghost, that was speechless to his wife, could tell these strangers he had been killed in India, adding, "That thing I used to go about in is not buried yet." The lady particularly remarked the expression. Mr. Owen is perfectly triumphant about the *facts* of this case. He says, "Those who would explain the whole on the principle of chance coïncidence have a treble event to take into account; the apparition to Mrs. M——, that to Mrs. W——, and the actual time of Captain W——'s death; each tallying exactly with the other." The looseness of assertion in which Mr. Owen can indulge in face of his own statements, is, at the least, most reprehensible. The events, even as related by himself, show that the "time" with every regard to the difference of longitude did not "tally exactly." Captain W—— was killed on the afternoon of the fourteenth November, before Lucknow; Mrs. M—— had her alleged hallucination about nine o'clock in the evening of that day; but the wife had hers early in the morning of the fifteenth November. Exact dates are, however, nothing in necromancy.

The remarkable illusions and hallucinations which the linked sequences of vital and mental states will produce, and upon which depend what is termed association of ideas, have not been hitherto observed in a scientific way. Their connection with the states of the organism upon which memory depends, have in particular been greatly overlooked. In the aged, whose memory of events does not reach beyond the hour, the association of ideas is vigorous in relation to the events of childhood or youth, and their hallucinations correspond. Both phenomena equally depend upon the nutrition of the brain, which in old age is feeble, in youth vigorous. Something like this occurs not unfrequently in sleep, under special cerebral conditions. Thus persons born in India, and who in childhood had learnt something of the language of their Ayah, or native nurse, will dream of that language long after it has wholly passed from their waking memory. In certain forms of delirium, in which there is a cerebral state very analogous to, if not almost identical with, that of dreaming, similar long-forgotten reminescences will occur. Of these there are various well-known examples in books.

Now this kind of hipnotic reminiscence may serve to recall important, but wholly forgotten facts to the memory. As an illustration of this class of dreams we may mention Mr. Rutherford's dream, as told by Sir W. Scott, in his notes to the *Antiquary*. Mr. Rutherford dreamed his father appeared to him, and revealed to

him all particulars of a missing legal document, and which proved to be correct. This was no doubt an act of dream-memory, but in which (as is the law of dreaming) the reminiscences were presented to the consciousness as realities. Mr. Owen makes much of this story, which is obviously of a purely physiological nature, and is only interesting as illustrative of the laws of phreno-vital action.

The following instance indicates the influence of the association of ideas in causing hallucinations, both in a state of febrile disturbance of the brain, and in that condition which coïncides with a fixed hallucination. It was communicated in a letter addressed to ourselves by a man of education and superior intelligence. We may designate it, in the Owen style, as

"The Spectral Brother.

"Presuming on your kind manner to me when we met in ———, I have ventured to send to you the following details of perhaps as extraordinary a case as you ever met with. . . .

"The fact, then, is, that I am the victim of a most singular spectral illusion; but in order to make myself fully intelligible, I must premise the relation of a few circumstances.

"When I set out on my wanderings nearly six years ago, I left behind me a younger brother, to whom I was very much attached. He was the handsomest and cleverest boy I ever saw, and of a disposition so sweet as to endear him to all who knew him. He was my constant companion when at home. We went to school together, and were scarcely ever a day away from each other till I left England; and then the thought of being separated from him was far more painful to me than that of leaving all my other friends.

"At Sourabaya, in the Island of Java, I was seized with fever, and removed to the military hospital there. One morning the doctor informed me that he considered my case to be a very serious one; and on the evening of the same day, I was lying in a state of semi-consciousness, with all sorts of strange phantoms passing before me, when I suddenly heard the voice of my brother speaking quickly. The words were as distinct as if the speaker had been standing at the foot of my bed, and were these: "Write to Harry. Tell him to come home; tell him to come quickly." After I had recovered from the shock produced by this event, I thought but little of it; as I had several times before, when in the same state, fancied that the two Dutch officers who occupied beds in the same room with me were talking English, though I knew very well, when I was fully conscious, that they could not speak a word of it.

"Judge, then, of the feelings of surprise and awe I felt when, nearly two years afterwards, I received a letter in Australia informing me of the death of my brother, and that, very shortly before he died, he called for a pencil and some paper to write to me, but not being able to trace the letters, he addressed to my sister those very words which I heard in the hospital at Sourabaya, many thousands of miles away!

"No arguments could persuade me that this part of the story can be accounted for by natural causes. Whether it be that spirits so nearly freed from the body can in some instances hold communion or not, I do not pretend to say; but I am perfectly convinced that those words actually sounded in my ears as they were spoken by my dying brother. What follows, however, I know to be a mental delusion of a most extraordinary nature.

"Ever since the receipt of that letter, long-continued residence in any place has invariably subjected me to a most painful trial. Though the time varies slightly, yet, generally, if I live in the same house for about three months, at the end of that time I begin to be haunted by an image or shadow of my brother; and I solemnly assure you that at this very moment he seems to me to be sitting at the other side of the table, and looking upon me with that sweet smile I remember so well.

"This imaginary presence gives me no alarm, or hardly interrupts my ordinary avocations, so accustomed have I become to it; but still it is an inexpressible relief to be free from it. And, strange to say, change of scene banishes it for a time, though the most active employment during the day is quite ineffectual to remove the illusion, if I return to the house at night. I see it without distinction of time or place. It landed with me in England, and then left me, but returned immediately on my arrival at home, where almost every blade of grass reminded me of the dead. It looked upon me while engaged in my studies at ———; and I sometimes walk along the streets of London, with this figure so plainly visible to me at my side, that I have almost expected the passers-by to turn round and wonder at my strange companion. I never visit my home now, as, when I am there, the shadow is as inseparable from me as the living original *was*.

"I have struggled against this singular delusion for nearly three years in vain; and I believe that I shall continue subject to it for the rest of my life, unless something equally strange with its cause happens to remove it.

"I have narrated this singular history to you, because I thought that you would be interested in it, and because . . . . . If you should consider it worthy of any attention, I can have no objection to your mentioning the particulars, but I must beg of you to keep the name a secret."

This touching narrative is so highly illustrative of the natural history of illusions and hallucinations, that we have venture l to avail ourselves of the writer's permis-

sion to utilize it. The whole can be readily referred to natural causes. The fever-poison had placed his brain in such a condition that illusions were readily excited. Thus the conversation of the officers in Dutch was metamorphosed into an illusion of his own tongue. The announcement of the serious nature of his illness had naturally led him to thoughts of home, especially of his beloved brother; and the creative imagination having acted as it always acts in dreams, he anticipated the thoughts and language of his brother, which anticipations became subjectively realized as hallucinations. That he should have thus anticipated what his brother actually said, is nothing surprising; on the contrary, it is just what might have been expected, for this kind of mental process is one of the most common things to be noted in dreams. The reëxcitement of the spectral illusion at home, where every blade of grass reminded the sufferer of the dead, was evidently also due to the association of ideas. That shadowy reminiscence of a deceased brother, or wife, or child, which remains internally as a fleeting act of the representative faculty, was in him projected externally as a specter, because of the peculiar predisposition of his cerebral tissue to vigorous presentative function. The only point to be specially noticed, is the coïncidence as to time of the sickness of the two brothers; but this is also a natural phenomenon not so difficult of explanation as might appear at first sight.

Mr. Owen gives the history of a dream in which a murder was presented to the consciousness of a distant person as it occurred, and which is related by Dr. Carlyon in his *Early Years and Late Reflections*. Of this dream Mr. Owen observes: "The various coïncidences taken together, as proof that chance is not the true explanation, have all the force of a demonstration of Euclid." Let us see what this proof is.

"THE MURDER NEAR WADEBRIDGE.

"On the evening of the 8th of February, 1840, Mr. Nevell Norway, a Cornish gentleman, was cruelly murdered by two brothers of the name of Lightfoot, on his way from Bodmin to Wadebridge, the place of his residence. At that time, his brother, Mr. Edmund Norway, was in the command of a merchant vessel, the Orient, on her voyage from Manilla to Cadiz; and the following is his own account of a dream which he had on the night when his brother was murdered:—'Ship Orient, from Manilla to Cadiz, February 8th, 1840. About 7.30 P.M. the island of St. Helena N.N.W., distant about seven miles; shortened sail and rounded to, with the ship's head to the eastward; at eight set the watch and went below; wrote a letter to my brother, Nevell Norway. About twenty minutes or a quarter before ten o'clock went to bed; fell asleep, and dreamt I saw two men attack by brother and murder him. One caught the horse by the bridle, and snapped a pistol twice, but I heard no report; he then struck him a blow, and he fell off his horse. They struck him several blows, and dragged him by the shoulders across the road and left him. In my dream there was a house on the left-hand side of the road. At four o'clock I was called, and went on deck to take charge of the ship. I told the second officer Mr. Henry Wren, that I had had a dreadful dream—namely, that my brother Nevell was murdered by two men on the road from St. Columb to Wadebridge; but that I felt sure it could not be there, as the house there would have been on the right-hand side of the road, so that it must have been somewhere else. . . . It was one continued dream from the time I fell asleep until I was called, at four o'clock in the morning.'

The murderer's confession is as follows:

"'I went to Bodmin last Saturday week, the 8th inst., (February 8th, 1840,) and in returning, I met my brother James at the head of Dummeer Hill. It was dim like. We came on the turnpike road all the way, till we came to the house near the spot where the murder was committed. We did not go into the house, but hid ourselves in a field My brother knocked Mr. Norway down; he snapped a pistol at him twice, and it did not go off. He then knocked him down with the pistol. I was there along with him. Mr. Norway was struck while on horseback. It was on the turnpike road, between Pencarrow Mill and the directing-post toward Wadebridge. I cannot say at what time of the night it was. [It was between ten and eleven o'clock.] We left the body in the water, on the left side of the road coming to Wadebridge. He took some money in a purse, but I did not know how much. My brother drew the body across the road to the watering.'"

Doubtless in this case the coïncidences were very remarkable, yet they may be easily referred to natural causes. These, however, we must speculate upon, as the history supplies few data in reference to the causes of the dream; nor, perhaps, would Mr. Edmund Norway have been himself conscious of the trains of thought that passed through his mind previously to dreaming. They would probably be these:—Writing to his brother on a winter's night, in the solitude of his cabin, his thoughts revert to home. It is mar-

ket day; his brother will have gone to Bodmin; he will have to return home late on a winter's night, on a lonely road, with money. What if he is attacked, robbed, and murdered? The imagination realizes in sleep this antipation, as a thing done, with all particulars. And these are of the most common. Two men usually cooperate in these robberies; the bridle of the horse is seized at a suitable spot on the road; then a pistol presented—all this is matter of course. The pistol being fired, it is next used as a bludgeon; and the surprised traveler being knocked from his horse, is assaulted again on the ground to make assurance doubly sure, and his senseless, perhaps lifeless body, dragged to the roadside for the greater convenience of hiding and rifling it. The dreamer would know the road well, and select in imagination that spot as the scene of the deed, which, perhaps, he had already remarked long ago as a suitable locality for a murder and robbery. If the murderers had been known to him as bad characters, or suggested to him in any way by any antecedents, he might even have fixed upon the identical individuals. The only point to be noticed is, that the pistol was snapped twice; but this is just one of the most common of occurrences. The chances, it is well known, are at least equal, that a pistol so presented will miss fire, and be snapped again: probably Mr. E. Norway knew this quite well. That he should *dream* of the murder of his brother on the very night on which it took place, is, in fact, no more remarkable than that he should *write* to his brother on the same night; it was the writing, no doubt, which led on to the dream.

There are two other points to be noticed: one, that the dreamer believed he had been dreaming all night, when it was far more probable the dream began only a few moments before he was called; the other, that he reversed the situation of the house. This reversal, however, is not uncommon in dreams, and is probably due to the crossed action of the encephalon. So much for this wonderful dream, the coïncidences of which, Mr. Owen thinks, "have all the force of a demonstration of Euclid" in favor of his ultra-mundane hypothesis.

It may be well to notice here, however, the important circumstance that these coïncidences, remarkable as they are, are by no means so numerous as they might easily be expected to be, when we remember the mode of their occurrence. It is often nothing more than the anticipation in dream-thought of an event which may probably occur. Possibly, if amongst the myriads of myriads of dreams that happen, every coïncidence, however trival, were noted, we should find them to occur much more frequently.

Amongst the causes of dreams of a distressing character, the most common are morbid states of the viscera, as the heart, lungs, liver. Now, there is a class of dream-coïncidences and concurring hallucinations which may be explained through this fact. We have seen that the gentleman who suffered from an abiding spectral illusion of his brother was sick at the same time his brother was; and thus, while he in his sickness thought of home and his brother, his brother in his sickness thought of him. The coïncidence of sickness has been not unfrequently noticed in members of the same family, even although in widely distant localities. It has been most particularly observed, however, in the cases of twins. There are several histories on record, in which it is stated that twins (most commonly of the same sex) have gone through the successive infantile diseases at the same time, cut their several teeth at the same time, and had acute diseases at the same time, although inhabiting different and even distant localities. In such cases, it would be simply a matter of course that the nervous system should be similarly affected, and the mental states connected therewith be, if not alike, at least somewhat similar.

Nor is the explanation of these physiological and morbid coïncidences difficult. From the moment of conception to old age, there occur in the individual a regular succession of vital changes, circumscribed within periods of time. For example, life in the egg and the uterus terminates at the end of a period varying in length in different orders and genera of animals, but the duration of which is fixed for each. Then, again, various structures, as teeth, hair, feathers, appear subsequently to birth at regular periods, perhaps not equally definite as that of uterine or egg life, but still so decidedly regular as to afford proofs of age. Now, if two persons commence life at the same hour, and under the same conditions, constitu-

tional and otherwise, (as is often the case with twins,) their wheels of life will run on parallel lines, and they will undergo these periodic changes at the same time; and as the condition of the body under which they take place is one which predisposes to disease, they will also be liable to attacks of fever or inflammation at the same dates, or to diseases of the same constitutional character, or to be influenced by the same kind of atmospheric or seasonal changes. Such a law serves to explain the following dream, of which Dr. Macnish was the subject, who relates it in his "Philosophy of Sleep:"

"I was in Caithness, when I dreamed that a near relative of my own, residing three hundred miles off, had suddenly died; and immediately thereafter awoke in a state of inconceivable terror, similar to that produced by a paroxysm of nightmare. The same day, happening to be writing home, I mentioned the circumstance in a half-jesting, half earnest way. To tell the truth, I was afraid to be serious, lest I should be laughed at for putting any faith in dreams. However, in the interval between writing and receiving an answer, I remained in a state of most unpleasant suspense. I felt a presentiment that something dreadful had happened or would happen. . . . Three days after sending away the letter, what was my astonishment when I received one written the day subsequent to mine, and stating that the relative of whom I had dreamed had been struck with a fatal shock of palsy the day before—that is, the very day on the morning of which I had beheld the appearance in my dream! I may state that my relative was in perfect health before the fatal event took place. It came upon him like a thunderbolt, at a period when no one could have the slightest anticipation of danger."

The fundamental coïncidence here is, that the two relatives were indisposed in their nervous system at the same time: in the one, it resulted in a nightmare dream; in the other, probably, in a rupture of a blood-vessel in the brain;—we say probably, for this seems to have been the kind of apoplexy. Now, in a case of this kind, we should want to know whether the two relatives were alike in constitution, so far at least as to be equally predisposed to disease of the vascular system? whether there was not heart disease in both? whether Dr. Macnish, at the time of his dream, had not disturbance of the heart's action?—for to that his dream points;—whether there was not something in the weather, or the season, or the barometric conditions, such as would affect the circulation in the two relatives alike? whether it had not occurred to Dr. Macnish, as a passing suspicion, that his relative had such a constitution as predisposed to sudden death at some time by apoplexy or palsy? This is the line of inquiry that a coïncidence of this kind would indicate, and we venture to think that an explanation would thus be reached. It may be alleged that this is wholly hypothetical. Allowed; but it is hypothetical because the relaters of these interesting coïncidences afford no solid data for an explanation; or rather, men like Mr. Owen prefer to wonder, and to suppress all facts which will help to elucidate the question in a simple and natural way. To do otherwise, would be to offend that love of the marvelous which is at the root of these ghost-stories and of strange coïncidences.

Mr. Owen has some wonderful histories of knockings and other disturbances of houses. These he evidently classes with the "ultra-mundane" phenomena known as spirit-rappings and table-tippings. Here we have the famous story of the "Drummer of Tedworth," which has delighted so many young folk. We confess to an early liking for this rollicking drummer. Never was trick more cleverly played. Mr. Mompesson, a magistrate, had caused a vagrant drummer to be arrested; and the bailiff having taken away the fellow's drum, sent it to Mr. Mompesson's house. Henceforth there was no peace there. Drummings were heard in the room where the drum was, knockings here, knockings there, knockings every where—not constantly, but intermittingly, at intervals for the space of two years. For an hour together this drumming devil would impudently "beat 'Roundheads and Cuckolds,' the 'Tat-too,' and several other points of war, as well as any drummer." This story is one of Mr. Owen's *pieces de resistance*. He evidently believes every word of it.

The "spirit manifestations" of knocking, making noises, moving furniture, and playing mischievous tricks, such as pinning people together, may be attributed to fraud and hallucinations, or to supernatural agency, according to the taste or bias of the inquirer. It is for us to determine which is the more probable, for at least the sounds and movements of things may be hallucinations. To this explanation Mr. Owen objects, that we must believe the evidence of our senses, even although

it contradicts our reason and the results of all our knowledge and experience.

"Suppose, for example, (as occurred in my apartments at Naples,) that sitting in one's own well-lighted apartment, where no concealed machinery or other trickery is possible, in company with three or four friends, all curious observers like oneself, around a large center-table, weighing eighty or a hundred pounds, the hands of all present resting upon it, one should see and feel this table, the top maintaining its horizontal, rise suddenly and unexpectedly to the height of eight or ten inches from the floor, remain suspended in the air while one might count six or seven, then gently settle down again; and suppose that all the spectators concurred in their testimony as to this occurrence, with only slight variations of opinion as to the exact number of inches to which the table rose, and the precise number of seconds during which it remained suspended—ought the witnesses of such a seeming temporary suspension of the law of gravitation to believe that their senses are playing them false?"

Mr. Owen gives as the answer, "All they would be justified in saying is, that they placed their hands on the table, *and the table rose.*" No!—not that—it *seemed to rise;* for the natural conclusion one would draw from this statement of the facts would be, either that Mr. Owen would doubt whether the table did rise at all, or else examine experimentally into the facts. He would measure the height of rise and length of time occupied, and seek for the source of the motive power. But this does not suit the object in view, which is to prove that the table did—not apparently, but actually—rise in virtue of a motive power which is like nothing known to engineers or other terrestrial people. Hence neither measure nor chronometer was appealed to.

"I make no assertion [!] that the tables are raised by spiritual agency. But suppose Mr. Faraday, by disproving every other hypothesis, should drive me to this, it would be much more philosophical to adopt it than to reject the clear and palpable evidence of sense. For, if we assume any other principle, all received rules of evidence must be set at naught; nay, our very lives would be made up of uncertainty and conjecture," etc., etc.

This, as the laws of hallucination prove, is sheer nonsense. Mr. Owen may speak for his imaginative self and his credulous friends in this strain with much truth; but does he imagine that the common sense of mankind would not come to the prompt conclusion on the question, if nothing was said of spiritual agency, either that their eyes deceived them, or by some one, or by mechanical means, to them unknown, the table was raised? Tables, as every footman and housemaid knows, never move without being lifted by ordinary terrestrial means. If no trick was played upon Mr. Owen and his curious friends, then they undoubtedly labored under an hallucination;—no wonderful thing, surely, when we remember how easily illusions take place.

Mr. Owen acknowledges the *possibility* of this; but then he insists "that, according to the doctrine in the most accredited works on the subject, if two or more persons, using their senses independently, perceive, at the same time and place, the same appearance, it is not hallucination; that is to say, there is *some* actual foundation in fact." This is a poor foundation—this "doctrine in the most accredited works"—upon which to build an "ultramundane" theory. The "doctrine" is all wrong, however accredited. In truth, to excite the same hallucinations in a number of persons is an old practical joke. Two wits station themselves in a crowded street in London, and gaze intently into the sky. First one passer, his curiosity excited, stops to gaze, then another; and thus a crowd assembles, anxious to know what is to be seen in the sky. The answer at last is, A flock of wild geese—there being nothing but a fleecy cloud or two; yet half the victims of the trick at once profess to see the aërial travelers and their varying evolutions.

But the fact is not as Mr. Owen states, in even accredited works. Brierre de Boismont, in his elaborate work on Hallucinations, gives all particulars of an instance in which a whole battalion of soldiers, eight hundred strong, were affected with the same hallucination. It was that of the devil, in the form of a huge dog with long black hair, who rushed upon them while sleeping, and flew over their breasts (nightmare.) Twice the soldiers were affected by this spectral illusion, and fled from their sleeping-place, uttering the most alarming cries of terror. And it is hardly necessary to say, that if several persons be placed under precisely similar conditions as the one person who has an hallucination in consequence of being placed in those conditions, they will have the hallucination too. That the art of in-

ducing them in multitudes has been practised from time immemorial, might indeed be established by the most conclusive evidence, if that were necessary. Mr. Owen is evidently wholly ignorant of these things; but that is only another proof how little pains he and his co-believers take to ascertain the true causes of the phenomena they profess to investigate.

As to the physical manifestations of a character such that considerable force must have been used to cause them, so much has been printed already that the subject hardly needs further discussion. There is not the slightest proof that the force thus manifested is from an ultramundane source; its origin has simply escaped detection. And this is likely to continue the state of things; for the believers make no experimental researches whatever, while the unbelievers are excluded from instituting them simply in virtue of their unbelief. So soon as this is manifested, and preparations are made for an investigation which accepts no mere assertions and takes nothing on trust, the manifestations cease; for the "spirit" is offended, and the "medium" becomes powerless. Fraud has been repeatedly detected in some of the best authenticated examples of rapping and clairvoyance; indeed, the whole thing has become an avowed and practised juggle. Under these circumstances, it is hardly reasonable to expect a scientific man to spend his time and ingenuity in examining phenomena which are mere impositions on the senses; it is only as aberrant phenomena, the seat of which is in the nervous system, that a certain class do really merit the notice of the physiologist.

Further, if we examine the results of spiritualism, in any form, nothing whatever is revealed of all that man desires to know. Should he inquire into the past, the results are mere figments of the imagination, or well-known facts done into pretentious language. Nor as to the present is any thing of the least importance revealed. The clairvoyante, with exalted perceptive powers and practised eye, can often read in his countenance the thoughts of the credulous inquirer, or cunningly guess at particulars of his history; but this amounts to nothing more than a species of conjuring by means of a morbidly exalted nervous system. Such divination amongst ancient nations was part of the routine of everyday life, and was far more extensively practised and honored than the modern practices of mesmerism and spiritualism—being, in fact, a large portion of religious duty.

It is this class of phenomena, indeed, to which the inquirer in mental science should exclusively direct his attention. In these exaltations of the faculties by various processes, whether mesmeric, electro-biological, or hypnotic, or by intense thought operating on supersensitive brains, we have a series of experiments of the highest value to mental science. To ignore the reality of them, and to class them with ordinary frauds, however fraudulent their uses may be, can lead to no good results. If, on the contrary, they be examined as manifestations of peculiar mental and vital states, the inquiry can only result in a far more deeply grounded knowledge of the human mind, and its relations to the laws of vital action, than has hitherto been attained. Nor is it easy to predict to what large results such knowledge may bring us. Hitherto, the entire class of physiological mental phenomena with which these credulous necromancers deal exclusively, have been wholly neglected by the metaphysician, and but lately inquired into by the physiologist. Mental science, in so far as it enables us to explain them, is almost as defective as was geology a century ago, when it dealt with fossil remains, and looked upon ammonites as petrified snakes, and the fossil bones of the mastodon as the bones of extinct giants; but let it be established on sound general principles, themselves the result of a true scientific method of research, and we may then reach depths of life and thought of which our forefathers have not even dreamt.

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THE MAMMOTH CAVE OF KENTUCKY.*

The love of adventure characteristic of Englishmen has well-nigh exhausted the mysteries of the globe. It is hard to light on any "lusus naturæ" that our countrymen have not explored. Not content with gratifying their own appetite for the marvelous, they have written, painted, and photographed to good purpose. Our Cockney friend, who has not tempted Neptune beyond Greenwich, will talk as fluently about Niagara or Mount Blanc, the Pyramids or Behring's Straits, as his grandfather might have done about Snowdon or Glencoe. If the modern traveler would be original, he must accompany Livingstone through the African desert, or get accredited to the court of the Tycoon. Strange that when the laboratory of Nature has been so thoroughly ransacked, so little is known in this country of the greatest natural curiosity in the Western Continent—the Mammoth Cave of Kentucky. The very name will be new to the ears of most Englishmen, and if it awakes any ideas at all, they are hardly less mythical than the ancients entertained of the cave of Trophonius, or the labyrinth of Dædalus. Yet this extraordinary cavern, which might serve as a counterpart to the Hades of antiquity, is perfectly accessible, and visited annually by thousands of Americans. It only requires to be generally known, in order to become at some future day a Mecca of the tourist world.

In the course of a recent ramble through North America we paid a visit to this remarkable place. In attempting to describe it, you feel like a waking man who tries to recall the sensations of nightmare; he finds that the impressions which have flitted through his sensorium are so vague and shadowy that they defy analysis; his brain has been the theater of a strange phantasmagoria, which language is not adequate to express; and so the unearthly scenes which are witnessed in this cave sometimes baffle the power of words to describe, and you discover that our vocabulary would require copious additions, before it could become the vernacular of shades.

The town of Louisville, on the banks of the Ohio, is the favorite point of starting for the Mammoth Cave, and a railway has been recently constructed which brings you within a few miles of the spot. One lovely morning during the past summer we left Louisville and traveled by this road through the heart of Kentucky. It would be hard to find any where a more picturesque combination of sylvan and pastoral scenery than this route affords. A few miles further ride by coach, along roads that would dislocate an English vehicle, brought us to the Cave Hotel—a primitive-looking building, with rather a tumble-down aspect, and very different from most of those palatial structures which astonish European travelers on their first visit to the States.

The mouth of the cave is situated within two hundred yards of the hotel, and is a dark ugly hole, from which issues a current of cool air, producing at times a mist or fog by contact with the warm atmosphere outside. Our party, which comprised several ladies, attired themselves in suitable costume, the ladies being equipped in Bloomer fashion, with scarlet cloaks and turbans, which acted as a foil to the darkness of the cave, and produced a highly picturesque effect. Each of us was provided with a lamp, and early in the morning we bade adieu to the realms above, and, preceded by our guide, marched in single file into the mouth of the cave.

Our course lay for about half a mile along a natural tunnel, styled in the nomenclature under ground, "the narrows," when a large circular space was reached called the "Rotunda," with a flat ceiling about one hundred feet high. The floor of this apartment has been cut up by miners, who, in the last war with Great

* Those of our readers who may visit this renowned Cave during the coming summer, will be glad of this description.—Ed. Eclectic.

Britain, manufactured saltpeter in the mouth of this extraordinary cavern. Fragments of vats and other materials are strewed about, and the wood remains as sound as when it was left there fifty years ago. The prints of the feet of the oxen employed in the work are also distinctly visible, the soft clay on which they were impressed having hardened almost to the degree of petrifaction. Our guide illuminated the "Rotunda" by means of Bengal lights, and the effect was strikingly grand, when this vast space, equal to the area of St. Paul's, was clearly lighted up, the blue sulphurous flame casting a lurid glare on the rocky walls like that produced by vivid flashes of lightning. This scene, however, was soon dwarfed by others of greater sublimity and lost in the retrospect much of the influence it then exerted on our minds.

On leaving the Rotunda we enter a rocky chamber, called the "Methodist Church," having a shelving ledge, from which, we are told, preachers of that persuasion held forth to their audience in former times, though why they should have sought this unearthly oratory is not easy to imagine.

On the right we now pass a huge mass of rock, forty feet in length, named the "Giant's Coffin," bearing a striking resemblance to that last receptacle of mortality. It is not hard to suppose that some Cyclops unknown to fame—some Columbian Polypheme or Cacus—lies here entombed. Indeed the entire cave, with its vaulted chambers, corridors, and galleries interlacing each other in endless labyrinthine folds, and reposing in sepulchral silence and gloom, irresistibly reminds one of a huge catacomb.

The darkness and stillness of this city of the dead is such as cannot be imagined by those who have not experienced it. For miles not the faintest sound is heard. When you sit still and listen, the pulsations of your heart are distinctly audible, and the throbbing of your head becomes painfully distinct. To a person of a nervous temperament, the din and tumult that reveal themselves *within* become deafening, and he is glad to break the silence without to quell this internal uproar.

These effects, however, are but seldom realized by visitors; for the excitement and novelty of the scene usually provoke a flow of animal spirits, and banter, repartee and boisterous merriment expel all sense of preternatural awe. It may be added that the atmosphere of the cave is said to produce an exhilarating effect; it is certain that the power of physical endurance is largely increased, and exertions that above ground would cause exhaustion, are made without the least fatigue. This may partly arise from the uniform cool temperature that prevails, for the thermometer stands at fifty-nine degrees all the year round, and is the same in every part of the cavern.

Our path now turns abruptly round the "Giant's Coffin," and enters a tortuous passage, sometimes so contracted that a Newfoundland dog could hardly walk through erect. Along this we scramble, stooping and twisting ourselves in every conceivable shape, sometimes groping up a steep tunnel, then sliding down a rapid decline, with bodies curved to a semicircle, ever and anon stumbling and knocking our heads, backs, and knees against projecting angles, till at last we slide obliquely on to the upper step of a ladder, and so drop down into a broader pathway beneath. This intricate pass is termed the "Steeps of Time," and well it merits the name.

The archway now rapidly rises till the roof attains a height of fifty or sixty feet, and our road conducts us to the brink of a deep chasm, termed the "Bottomless Pit," though, if truth must be told, soundings have been obtained at a depth of 175 feet. Over an angle of this pit is cast a wooden bridge, entitled the "Bridge of Sighs," and the view from hence is one of the most sublime in the whole cave. Our guide dropped a Bengal light on a ledge of the chasm, which illuminated its gloomy recesses, sent a flickering glare over the lofty arch that spanned it, and brought out in bold relief the jagged cliffs that walled it in. The scene was one of exceeding wildness, and even in its physical elements could hardly be matched above ground; but when the death-like stillness is added, the preternatural glimmer of the light, and the long retreating vistas of darkness beyond, the realms of light must yield the palm, and resign to Erebus and Nox the dominion of horrors. If it were possible to add to the strangeness of the scene, the long line of human beings fantastically attired, each with lamp in hand, and face painted blue, by the sulphurous light, gave it a still more weird aspect;

and when stones were plunged into the chasm, they bounded from side to side, crashing and pounding, till, as they approached the bottom, their utterance subsided into a sighing murmur, as though fiends imprisoned below groaned and writhed in their fetters.

This scene is but a type of what occurs repeatedly in this subterranean kingdom. All the elements of sublimity existing here, are combined again and again in forms equally wild, fantastic, and ghostly. Leaving the Bridge of Sighs, we defile through a low archway, four feet in height, with a ceiling white as though it had been plastered, termed the "Valley of Humility," and reach a singular pass, called the "Scotchman's Trap," where huge pendulous rocks overhang, and seem to be supported against each other by a narrow wedge between. Why this treacherous contrivance should be charged on Caledonia does not sufficiently appear. We next enter a singularly narrow, tortuous passage, 'yclept "Fat Man's Misery," which, as the name implies, it must be torture to an obese biped to get through. This pass extends one hundred and fifty yards, varying from three to four feet in height, and in some parts is not more than eighteen inches in width. The opening has evidently been worn through the rock by the mechanical action of water, the sides being fluted where the softer material had been eaten out faster by the current. Through this pigmy avenue we thread our way with much physical contortion and mental anguish, and emerge with gratitude into a roomy chamber, very aptly styled "Great Relief." There we cautiously straighten ourselves, feeling whether our spines are sound, and our heads neither scalped nor contused; and if the inspection prove satisfactory, which we have good grounds for thinking is usually the case, we resume our journey and soon reach the shores of the "Dead Sea." This ominous title is applied to a deep pool of water of small extent, but extremely gloomy in appearance, over which lofty jagged rocks impend. Our road lies along a narrow ledge overhanging it thirty feet; and, dropping a stone into this dark pool, the plash reverberates along the aisles, deepening the gloom by its mournful sound.

Hardly have we passed the horrors of the "Dead Sea," till the melancholy "Styx" looms in view—a lane of deep water one hundred and fifty yards long, having a subterranean connection with the other rivers of the cave. The rocks which hem in the river are piled up in chaotic confusion, and support far up in the dimness above, a black unsightly roof. You might suppose that the giants of the cave had met here in deadly conflict, torn down the rafters of their hall, cracked the ceiling, wrenched out the buttresses that support the roof, and scattered the fragments of rock in wild confusion.

A natural bridge leads over the river Styx, enabling us to dispense with Charon and his boat, a contrivance, we presume, exclusively set apart for disembodied spirits.

A short walk takes us to the shores of "Lake Lethe," where we sigh at the thought that sweet oblivion is no longer to be found in its still waters. This pool, or sluggish stream, fills up the avenue through which we pass for one hundred and fifty yards, and compels us to resort to navigation. Two flat-bottomed boats, destitute of benches, and more nearly allied to rafts than any other specimen of naval architecture, receive the company.

We disposed ourselves along the sides or gunwales, balancing ourselves nicely, as the boats are loaded within two inches of the water, and our guide paddles us along its smooth surface.

The ceiling over our heads rises one hundred feet high, and vertical cliffs drop from it sheer into the water, and along this magnificent natural tunnel we take our first subterranean voyage. The still gliding motion of the boat, the vast archway above, the solemn silence that reigns around, recall the day-dreams of childhood. You ask yourself, is not this the subterranean avenue fashioned by the hand of the Genii that leads to the Valley of Diamonds? or is it not that peaceful stream that meanders through the blessed plains of Elysium? But the bark touches the nether shore, and the illusion vanishes. We disembark and enter a fine avenue, termed the "Great Walk," five hundred yards long, running from "Lake Lethe," to "Echo River." The bottom is covered with sand, and forms the watercourse of a stream when the rivers are high; and here we may explain the economy of these underground streams. In close vicinity to the Mammoth Cave

flows the Green river, a considerable tributary to the Ohio, and having an underground communication with the waters in the cave. When this stream is swollen, its water surges back into the cave and floods the streams inside, causing them to run with a turbulent muddy current; but when the Green river is low, the connection ceases, the waters in the cave became pure and limpid, and are recruited only by small springs within, so that, strictly speaking, they are ponds rather than streams. At the period of our visit to the cave, they were in the last-named state, and the current was scarcely perceptible. A little stream ran along "Great Walk," from Lake Lethe to Echo River, intersecting our path several times, and affording the gentlemen an opportunity of displaying their gallantry to the ladies. At last we reached the shore of Echo River, and again embarked in our flat-bottomed boats, expecting to renew the delightful sensations of our previous voyage; but scarcely had we pushed from the bank, when the lofty vault suddenly shelved down almost to the water's edge, apparently obstructing our progress. The guide, however, pushed the boat onwards toward the low archway, which was now dimly visible, and before we had time to reason or explain, he dropped on his knees and shouted to us to crouch in the boat, which already was entering the dark narrow passage. Lower and lower grew the archway, till at last there was but eighteen inches from the water to the roof; and as we lay squelched, like flounders, in the bottom of the boat, pasted with mud and sand, and our backs grinding against the rock, our feelings were novel in the extreme.

Here was a veritable counterpart to the story of that unfortunate in the Arabian Nights, who drifted down a black stream, that lost itself in a tunnel under the mountain; but human nature is trustful, and our spirits were less depressed than might have been expected. Soon the ceiling began to rise, and after a few moments we resumed our natural posture.

The roof now continued to range from ten to fifteen feet in height, the river spreading out to a breadth of fifty to a hundred feet, and continuing in that state for nearly three quarters of a mile. Here we enjoyed, perhaps, the richest treat reserved for visitors to the cave. The river derives its name from the number and fullness of its echoes, and we tested it by singing in chorus, with hearty emphasis, some of our finest melodies. The extent to which the human voice was deepened and enriched by the acoustic properties of the place was perfectly astounding. Each voice seemed endowed with the compass and power of a full-toned organ, and a perfect torrent of harmony rolled along the river, swaying from side to side and reverberating far in the distance. Later in the summer, when visitors are numerous, and enter the cave in parties of forty and fifty, a band of music occasionally performs on the river, and the effect must be as entrancing as when Orpheus lulled the janitors of Hades and played his way harmless through the realms of Pluto.

But our voyage is over, and we pass along "Silliman's-avenue," a walk extending a mile and a-half in length, rugged and broken, and presenting most of the features we have already described. Numerous galleries branch off on either side, leading to some of the most remarkable sights in the cave. One of these conducts to "Lucy's Dome," the loftiest apartment under ground, being over three hundred feet in height. This, however, we were not able to visit. At the entrance of Silliman's-avenue we cross a deep depression, lined on each side with soft clay, and styled facetiously, "the Infernal Regions." The footing is so slippery that few cross it without an act of obeisance to mother earth; and here we may remark that the cave, in general, is remarkably dry. There are very few spots where dripping comes from the roof, and the bottom is generally lined with an adhesive powder or fine sand, which renders the footing secure, and enables passengers to traverse break-neck routes that, under other conditions, would be highly perilous.

Silliman's-avenue communicates with the pass of "El Ghor," so named on account of its savage wildness. If possible, it exceeds in stern solitary grandeur any of the routes we have described. This avenue terminates in "Washington's Hall," a spacious chamber where travelers usually stop to lunch, as the débris of broken bottles which line the floor in all directions testify. Some ancient writer speaks of a "banquet of horrors," but our party, in common with their predecessors,

did not find that fare very satisfying. In fact it seemed only to have whetted our appetite for coarser diet, and champagne and sandwiches were discussed with uncommon gusto.

After resting here awhile, we entered the last great avenue, termed "Cleveland's Cabinet," from the extraordinary collection of natural curiosities which it contains. In profuse ornamentation this part of the cave far surpasses all the rest, the roof being lined with white gypsum, pure as alabaster, sometimes of a rich cream color, sometimes of snowy whiteness, and fashioned into all manner of graceful and elegant devices. The prevailing type of ornament is a net-work of flowers, dovetailed into one another, and for hundreds of yards the ceiling and sides of the avenue are literally hidden by a snowy efflorescence. The prevailing form of flower is of the polyanthus type, consisting of a circular cluster of leaves, about six inches in diameter, with pendulous flower-stalks, bearing blossoms at the end, and the imitation is sometimes so perfect that one can scarce help thinking that the chisel of the sculptor has been busy here. This portion of the avenue has been fitly termed "Flora's Garden." At another place the ceiling is covered with white balls about the size of a man's fist, bearing a striking resemblence to snow-balls plastered against the roof; hence the name of "Snow-ball Gallery." At another point the white gypsum of the roof is studded with minute crystals, which sparkle in the light like sunbeams, and the place is called the "Diamond Grotto." Nature, in this spot, seems to have exhausted her powers in the production of the beautiful, and, as in the grander portions of the cave, she dwarfs, by comparison, the mightiest achievements of the architect, so here she eclipses the choicest efforts of the sculptor.

But it is not here alone that specimens of her curious handiwork are found. All through the cave occur fanciful formations and grotesque resemblances to terrestrial objects. One small chamber, called "Martha's Vineyard," is crowded with immense clusters of little nodules, bearing a marked resemblence of grapes. In another grotto, diverging from the main route, the roof is divided into rectangular segments of the size and shape of bacon hams, whence it is termed "Bacon Chamber." Near "Martha's Vineyard" occurs a singular formation, called "Vulcan's Forge." Large heaps of what appear, at first sight, to be charred cinders, are piled on each other; the masses, however, are firmly cemented, and the indentations are probably confined to the surface, for the cave, generally, shows no traces of volcanic origin, and these formations must be solely attributable to the action of water. Another fantastic freak of nature is displayed in what is termed the "Fly Chamber," where the ceiling is dotted with innumerable black specks, as though a swarm of flies were roosting on it. Lower down, the white gypsum of the roof is fluted with black serpentine grooves, and looks as though a host of snakes were trailing themselves along it.

The foregoing comprise most of the prevailing types of curious formations, but numerous isolated devices prevail, bearing comical likenesses to men and beasts, and often provoking sallies of wit and bursts of laughter.

Cleveland's Cabinet is now past, and we reach a chaotic pile of rocks one hundred and fifty feet high, called the "Rocky Mountains," over which we scramble and look down into "the dismal hollow" beyond. This hollow, or abyss, which lies at the end of the cave, is of great extent, and has a singularly dreary and mournful aspect; you feel as if you had reached the very outposts of the nether world, and were cut off, by insurmountable barriers, from the cheerful realms of light. The bottom of the hollow is strewn with huge fragments of rock, and large masses encumber the shelving sides, sometimes arrested by obstacles so trifling that it seems

> "—— As though
> An infant's touch could urge
> Their headlong passage down the verge."

A narrow gallery branches off from the dismal hollow, which penetrates a little further, and conducts to the extreme known limit of the Mammoth Cave. A very ugly pit, called the "Maelstrom," said to be nearly two hundred feet deep, lies at the end, and is so narrow at the orifice that a man can step across it. The sides of the gallery are encrusted with limestone stalactites, some of which are very beautiful, and emit a sonorous sound when struck. Very few formations of this character, however, are found in this cave, probably on account of the dryness of the ceiling, for stalactites are only formed through the dropping of water.

The end of the cave is computed to be nine miles from the mouth, reckoning the sinuosities of the route; and considering the extreme roughness of the road, the exertion undergone was very great, but no one thought of fatigue, and the ladies of the party accomplished that and the whole distance back without being much exhausted.

Our route homeward lay along the track already described; but as we visited, on other occasions, some remarkable scenes not alluded to here, it may be as well to notice them in passing.

One of the most striking of these is what is called "Gorin's Dome." The visitor here looks through a natural window, half way between the ceiling and floor, and when illuminated by a Bengal light, the view is awfully sublime; the height of the dome is about two hundred feet, the walls rising vertically on either side, with somewhat of the appearance of basaltic formation. The "Gothic Chapel" more nearly resembles a specimen of human workmanship than any other apartment in the cave. It is an oval room, about fifty feet long, with a ceiling fifteen feet high, resting on eight or ten huge stalactites, of columnar form. From each of these we suspended a lamp, shedding on the chamber a dim religious light, and the resemblance to an ancient Gothic chapel was complete. The effect proved so solemnizing that merriment seemed profane, and you half expected to see some venerable monk emerge from his cell and begin to repeat his vespers.

Beyond this chamber runs a gallery with a low ceiling, covered with singular protuberances resembling humps, and extending half way to the ground. These are, doubtless, of the stalactite order, but want their tapering form, and look as if they had swollen out from some tumors in the system.

In some respects, however, the most striking spectacle in the whole cave is witnessed in what is called the "Star Chamber." This is a vast hall about five hundred feet long and sixty feet in breadth and height. The walls are vertical, and the ceiling is perfectly flat and encrusted with black gypsum, covered with innumerable white dots. Viewed by a faint light, your first impression is that you are gazing at the dark vault of heaven studded with countless stars; the sharp outline of the cliffs stands out in bold relief against the dark blue firmament, and the milky-way spans the section of the sky which is disclosed through the aperture. While we stand lost in astonishment at this strange mirage, the guide collects our lamps and retires with them to a cavity on the opposite side; forthwith clouds begin to sweep over the heavens, the stars are obscured, and a tempest seems to be approaching. But the clouds soon part asunder and the moon shines out with a feeble light. Again the sky is overcast, and this time the darkness thickens and grows in intensity till it may almost be felt. Not a glimmer of light is to be seen on the horizon; a death-like silence reigns, and you hold your breath in momentary expectancy of some preternatural event. But, hark! far away in the distance a cheering sound is heard; you catch the faint echo of a cock-crow, and again the sound is heard, and comes nearer and nearer till at last a glimmer appears on the eastern horizon—it is the beautiful Aurora heralding the dawn. Now the light waxes stronger, and the eastern crags reflect the radiance, and—blessed sight—the sun himself rises full-orbed, chases the darkness away, and restores us to the land of the living.

The explanation of this phantasmagoria is simple: An under-ground tunnel conducts from the Star Chamber to a distant part of the cave. Our guide gradually withdrew the lights from view, producing the illusion of driving clouds, and letting them shine through a little aperture, formed the image of the moon on the roof, then disappearing in the tunnel he left us in utter darkness, and, after a while, reäppearing in the distance, heralded the dawn, and bringing the lamps arranged in a circular form into view, produced a striking resemblance to the rising sun.

We have given a faint outline of the most striking scenes witnessed in this subterranean realm, but the reader must not conclude that he has got any thing like a complete account of its wonders. In the course of several visits we did not cover nearly a fourth of the ground that has been explored, and many of the objects we did see have left such confused impressions that we do not venture to transcribe them. We believe, however, that what we have depicted is fairly typical of all the scenery in the cave; and enlarging the picture would only distract the attention, by calling it away from the more

prominent figures in the foreground. It is also possible that we have occasionally transposed the locality of the points, and appropriated to one scene some of the features belonging to another; but as we are not writing a guide-book, but only photographing the impressions made upon our mind, absolute correctness in detail is not essential.

We may add, that the total length of avenue explored is supposed to exceed considerably one hundred miles, though most of that distance is seldom or never visited by tourists. The routes we have delineated are arranged so as to include the most striking objects; and as the guides are usually employed in conducting parties over them, it is difficult to get access to the remoter parts. It is needless to remark, that none but those intimately acquainted with the cave can venture in without guidance, the net-work of galleries is so intricate, that a stranger would infallibly lose himself and would soon perish, if assistance did not reach him. Almost every year cases occur of persons who wander from their party, and though the guides have usually recovered them, so terrible is the effect of being left alone in the dark that, in several cases, reason had departed for ever. Many openings in this cave have not yet been investigated, and it is thought probable that the part unexplored may nearly equal in extent the portion that is known.

Scarcely any animals except bats exist, but of these immense numbers congregate in some of the galleries; traces of rats are also found, and a peculiar species of cricket, without eyes. There is also found in "Echo" river a fish similarly constituted: but we believe eyeless fish are found in various parts of the world.

At one time a notion prevailed that the atmosphere of the cave was favorable to consumptive persons, and several cottages were built for the reception of such, and about a dozen individuals were induced to make the experiment. The effect, however, was disastrous; for nearly all the patients died either in the cave or soon after leaving it; some of them having resided four or five months there. The appearance of these persons, on coming into the light, is said to have been ghastly in the extreme; the pupil of the eye had dilated till the iris was not visible, and their faces were bloodless and almost transparent. These effects, however, do not indicate any unhealthiness in the atmosphere; but are such as would naturally follow from the total privation of light. In fact, the air of the cave, being wholly free from animal and vegetable matter, is remarkably pure, and occasional trips are rather beneficial than otherwise; the guides, who have been from ten to fifteen years in the service, and generally spend most of the day under ground, enjoy excellent health.

As we are neither able nor desirous to give a scientific account of the formation of the cave, we have scarcely glanced at the geological view of the subject; we may add, however, that the rock out of which it is hollowed consists of limestone, and that chemists consider the excavation to have been effected by water holding carbonic acid in solution, while the curious formations have been produced by the combinations, in different degrees, of the chemical ingredients of this water with the limestone.

Since the cave has been discovered no perceptible change has been detected in it, and no rocks are known to have been detached from the roof. At the same time the avenues are covered with huge fragments which, some time, must have dropped from above; while other masses are partially detached, and seem ready to drop with the slightest concussion.

In passing beneath these pendulous masses, sometimes without visible means of support, the tourist is apt to shrug his shoulders and wish himself through.

The only real danger to which visitors are liable springs from the sudden rising of the rivers. It is just possible that, in this case, communication with the mouth might be cut off.

Such an accident very nearly happened to a party of ladies and gentlemen, two summers ago. The water of Echo river rose in their absence and filled up the low archway we have already described. Even in that case, however, another opening, much higher, called "Purgatory," is available, and to this they attempted to steer the boot, but the strength of the current was so great that they were repeatedly swept past the opening and, on one occasion, were within a hair's-breadth of being sucked under the low archway and swallowed up. The first party, however, made good their landing, (the company being divided into two detachments,) and owing to the gallantry of

some gentlemen, who volunteered to return with the boat and lend their assistance, the second party was also safely landed. No casualty, however, has yet occurred in the cave, under the auspices of the guides, nor is it likely to do so, as long as their instructions are followed.

The number of tourists who now resort to this place is considerable, amounting to four thousand or five thousand each summer; but, in all probability, the number will be vastly augmented in time.

It is well, however, that the public should know that this is not the only specimen of the kind to be found in this district. The largest portion of Kentucky is cavernous and penetrated by subterranean passages in all directions, and it is only by its grandeur and vast proportions that the Mammoth Cave has acquired its prominence.

Some of the smaller caverns are much richer in natural formations, especially in stalactites. The most beautiful of these, entitled the "Diamond Cave," we also visited, and, though an hour was sufficient to explore it, the remembrance will not readily be effaced. It consisted of a deep winding pathway, running back about two hundred yards and descending about one hundred feet into the ground. The entire passage was almost choked up by enormous clusters of stalactites depending from the roof and immense stalagmites raised from the floor. The two often met and formed fluted pillars of great length. The stalactites hanging from the roof are of every conceivable form, but the prevailing type resembles the tap-root of a plant; in fact, the first impression made upon the mind by the sight of these clusters is, that the roots of a tropical forest have penetrated the roof, or that, by some process, they have been suddenly laid bare. Many of these masses bear a marked resemblance to large cactus plants growing downwards, and the character of the formations is much more in keeping with the vegetable than the mineral kingdom. Some of these stalactites also possess the property of being, in a high degree, musical, and when struck by the hand emit the most melodious sounds. In some instances every note in the scale could be elicited as distinctly as from a musical instrument, and with a little practice, a good instrumentalist might easily learn to perform on them.

Our story is now told, and we will not deem the labor thrown away, if it tend to make our country more familiar with the subterranean wonders of Kentucky.

A great writer of last century paid the highest compliment to the work of a rival when he ascribed to it the merit of producing a *new sensation*. In these days of triteness it is difficult to light on so piquant a pleasure, whether in the sphere of literature or travel; but if the property exists at all, we know not where it is more apt to be found than in this modern Hades, and the most blasé tourist may still look forward to one fresh thrill of wonder and delight so long as he has yet to visit the Mammoth Cave of Kentucky.

THE REGION OF PERPETUAL FIRE.—The rate of increase of heat in the earth, as its interior is penetrated, is equal to one degree of Fahrenheit for every forty-five feet of descent. Looking to the result of such a rate of increase, it is easy to see that at seven thousand two hundred and ninety feet from the surface the heat will reach two hundred and twelve degrees, the boiling-point of water. At twenty thousand five hundred feet it will melt lead; at seven miles it will maintain a glowing red heat; at twenty-one miles it will melt gold; at seventy-four miles it will melt cast-iron; and at one hundred miles from the surface all will be fluid as water—a mass of seething and boiling rock in a perpetually molten state, destined perhaps never to be cooled or crystalized. The heat thus indicated will exceed any with which man is acquainted; it will exceed the heat of the electric spark, or the effect of a continued voltaic current. The heat which melts platina as if it were wax is as ice to it. There would be no means of measuring its intensity, even could the eye observe its effects. It is the region of perpetual fire.

Do all in your power to teach your children self-government. If a child is passionate, teach him by gentle means to curb his temper. If he is sulky, charm him out of it by frank good-humor. If indolent, accustom him to exertion, and train him so as to perform even onerous duties with alacrity. If pride comes in to make obedience reluctant, subdue him by counsel or discipline. In short, give your children the habit of overcoming their besetting sins.

VISIT OF THE AMERICAN EMBASSY TO PEKING.*

BY S. WELLS WILLIAMS, SECRETARY TO THE EMBASSY.

KWEILIANG opened the conversation by a full expression of his feelings at the occurrences at Taku, and at having been refused an interview by the English and French ministers at Shanghai, after waiting there so long at Lord Elgin's request. He was not interrupted in his remarks, but judging from his energetic manner of expression as he laid the failure of exchanging the treaties upon Mr. Bruce's determination to force his way past the forts, it seemed as if he saw that the occasion required him to vindicate his own policy and that of Hwashana, during the nine months they had been absent from their posts. They were now in the presence of their fellow-courtiers, many of whom were opposed to their policy and watching for their mistakes, and whose suspicions of the real designs of foreigners had been greatly strengthened by recent events. Some of those present were probably members of the imperial family, and it is not surprising that motives of curiosity, fear, and interest, should draw as many spectators to the interview as could obtain admittance. We ourselves had no doubt, from what we had learned, that the emperor had decided to admit the three legations to his capital, but at the same time to take all the precautions his fears of the conduct of a large body of foreign troops there naturally suggested. He did not intend, probably, that the English minister should come to Peking with an army while calling it an escort.

It was some time before Kweiliang was ready to enter upon the principal object of the interview. He said that the Emperor wished to do honor to the American minister now that he had reached his capital, not alone to exhibit his friendly feeling to him personally, but to prove the respect he felt for the President; and therefore they had now only to discuss the time and manner of the audience. In speaking of our chief magistrate, both he and Hwashana used the terms *Ta Hwang-ti*, or August Emperor, and *Kiun-chu*, or Princely Ruler; they sometimes also called him *Pi-li-si-tien-tih* for President, but this name is an awkward combination of unmeaning syllables in Chinese, and was not often used.

These are great changes from former usages, and in order to explain them, it is necessary to refer briefly to the views entertained by the Chinese respecting the position of their sovereign. They suppose that all mankind have been placed under the authority of one head by the divine powers. These powers, included under the comprehensive names of *Tien* and *Ti*, or Heaven and Earth, have delegated the direct control of mankind to the One Man, who was and always has been the Emperor of China; it is he alone who sits upon the Divine Utensil (the throne,) and makes with the other two the trinity of powers, *Tien*, *Ti*, *Jin*, that is, Heaven, Earth, and Man. He has the position, therefore, of the vicegerent or coördinate of heaven, and it is a solecism in the mind of every true subject of his throne to suppose or admit a second *Hwang-ti* — even more so than it would be in the mind of a Roman Catholic to admit of a second Vicar of Christ. The claim to this title has in fact been waived since the earliest times by nearly all other Asiatic sovereigns in favor of the Chinese; and the use of it this day for the chief ruler of a friendly and independent power indicated a change which perhaps grated harshly in the ears of some of the assembly.

Still, whatever terms the commissioners might use to denote the entire equality of their Emperor with the President, his representative only was now in Peking, and they held an audience to be necessary as a preliminary to the exchange of ratifications. They agreed that the United States was totally unlike Annam, Corea, Lewchew, or Siam, whose envoys brought tribute, and made the same prostrations as natives; but the American embassador

* Concluded from page 537, Vol. li.

had brought no tribute and would not be asked to perform the usual rite. Here Judge Sieh interposed and said, "Once kneeling and thrice knocking will do for a friendly power." This feeler was not taken up by his superiors, however; nor was the proper *ko-tau*, a ceremony which implies knocking the head on the ground once at least, ever required of Mr. Ward as a condition of his audience. An understanding of this point enables us to see more clearly how much the Chinese really conceded in their own view.

Before they went on to describe what mode of approach would be admissable, Mr. Ward deemed it better to state explicitly what his own views were on this subject, which now began to assume some importance; for the commissioners had not hinted at it in Shanghai, regarding it probably as a sequence of the visit, rather than as a stipulation on which that visit depended. He assured them of the great respect he felt for his Majesty, in which he knew he likewise expressed the sincere sentiments of the President, who had made them known in the letter of which he was the bearer. He had now come to Peking to deliver that letter, and to exchange the ratifications; and he should regard an audience with the emperor as a mark of high favor to himself and respect to his country. But important at the present juncture as a reception at court would be to China herself, as indicating her desire to treat foreign nations with equality and courtesy, he could not kneel when he came before the throne, for he never saluted his own ruler in that manner, nor did the representatives of the United States kneel when they came into the presence of any sovereign on earth. To kneel was, in his view, entirely a religious act, and he did so only in the presence of God. The treaty itself made no mention of an audience, nor had he asked it; but as they had spoken of it now, he wished to state what his views on the matter were; adding, in conclusion, that in other particulars he was ready to conform to the etiquette of the Chinese court.

Hwashana here observed, "Our rulers are equal, and so are we all as their ministers; now, as we kneel before the emperor, if you do not, we become unequal, for you are then raised above us." At this clever turn, Mr. Ward endeavored more fully to explain to them how their positions differed from his. Hwashana was a subject of the emperor and must obey his orders, and observe the ritual of his court; but Mr. Ward was the representative of another country, whose dignity he could not compromise by such a compliance. Besides, in the treaty made with Lord Elgin, it was stipulated that the "embassador of Great Britain shall not be called upon to perform any ceremony derogatory to him as representing the sovereign of an independent nation on a footing of an equality with that of China. On the other hand, he shall use the same forms of ceremony and respect to his Majesty, the Emperor, as are employed by the embassadors, ministers, or diplomatic agents of her Majesty towards the sovereigns of independent and equal European nations." This article at least expressed the sentiments of the Chinese plenipotentiaries last year, even if the English treaty was now, as Kweiliang had said, rendered null by the recent hostilities. Furthermore, they themselves must acknowledge, that if the respect paid to a person was not voluntary, it was hypocritical; and in performing the salutation of bowing, the American envoy exhibited all the respect he felt for his own ruler; which they themselves would admit, was fully as great as he could possibly feel for their sovereign.

The inquiry was made, whether they would willingly degrade their country abroad by doing any thing derogatory to its honor, or in violation of their consciences. This contingency was easy to answer, for with them conscience resolved itself into expediency, and the probabilities of their going abroad were uncertain; but we were hardly prepared to hear Kweiliang say, that if he himself was sent to Washington as envoy, he would perform the *kotau*, and do whatever was required of him at an audience;—yea, he would even burn incense before the President if asked to do so. A stronger testimony to the religious character of the homage rendered to the Emperor of China by his subjects could hardly be required; but it was further strengthened by the judge adding, "If we do not kneel before the Emperor, we do not show him any respect; it is that or nothing, and is the same reverence which we pay to the gods."

They then went on to observe that his Majesty would regard it as an indignity for an embassy from a friendly nation to

visit his capital, and the envoy not see him; when he required so much less of him, too, than he did of his own courtiers; and what was more serious, the President would be offended with him for not showing his embassador due respect. They quoted the usages of European courts, alledging that even in England persons knelt before the monarch when presented to him, and it would be no more derogatory to do so here than there. "You are a plenipotentiary," again interposed Hwashana, turning to Mr. Ward; "you have full powers, and can certainly do such an act."

"I am not invested with powers sufficient to enable me to change the laws and usages of my country, and can do nothing which will degrade it," was the reply. The full force of this argument will be better understood, however, when the reader learns that the term used in Chinese for *plenipotentiary*, may also be rendered *all-mighty*, or *completely powerful*.

The crowd of officials had gradually closed in nearer and nearer during this discussion, and several were occupied in taking notes. Kweiliang desired to postpone the matter till the next interview, so that both parties could reflect on the subject; and, what was of more consequence to him, it would give him time to consult with the Cabinet. He led the way into the next room, where a repast had been spread; and the exhibition of table-cloths and napkins, silver forks, knives and wine-glasses, none of which the Chinese themselves use, afforded an incidental evidence of the preparations which had been made to entertain the foreigners in Peking. While at table, Mr. Ward requested that horses might be sent to the Legation, for members of his suite to take exercise; to which Kweiliang replied, that as soon as the audience had taken place, every object of interest in the city and suburbs would be visited. Every one conversant with the usages of the Chinese in relation to embassadors, is aware that their first duties are with the court; and this practice of not publicly honoring them till afterwards, was referred to in a letter from the Russian minister.

The return to our lodgings was through the same streets, which were apparently lined with the same crowd that had filled them three hours before. The whole aspect of the streets, houses, shops and yards, indicated poverty, neglect, and shiftlessness, just what one might expect of the Manchus, from what is seen of them in Canton. The brick wall surrounding the Hwang-ching is in good condition, and the glance obtained through one of the large gateways of its interior, indicated better care of that part of the capital. We knew that the best streets and buildings exist in the southern and Chinese division, and were not disposed to judge of the whole from this dilapidated portion. The people are fairer in complexion, and larger in person than their countrymen at the south, and the women whom we saw were generally bedaubed with cosmetics.

The Imperial Commissioners returned this call at the Legation, riding in the same sort of carriages which had been furnished us on the journey. There was no military escort, and no parade in their attendants, though this may have been because we had no means of returning such ceremony, as had been the case at Shanghai. They were received by the gentlemen of the embassy in uniform, and conducted by the minister to the divan in the principal room, over which the American flag had been hung. Having learned that some soldiers were quartered about the Legation, Mr. Ward anticipated the remarks of his visitors, by asking them what it meant, as he wished to find out whether or no he was a prisoner. They disclaimed entirely any such idea; on the contrary, the men had been placed there to preserve order and keep off the natives, who would annoy the foreigners on going out, which they were free to do; though it was their desire that the gentlemen would not go out much until after the public business had been transacted. It was also agreed that this should be brought to a conclusion as soon as possible; and Kweiliang, after a little hesitation, assured Mr. Ward that his escort should be ready on the 10th to return to the ship. This gave nine days for the completion of our affairs; though for many reasons, it would have been better if we had remained in Peking until the Chinese intimated the day of departure.

After these points had been settled, the subject of the audience was brought forward, and much of the same ground again discussed. The principal thing insisted on to-day was that kneeling was practiced at some European courts — certainly it was at the English; and therefore, as Mr.

Ward had agreed to do at Peking whatever he would do at any of those courts, he was bound to kneel at the Chinese. The usage observed at Rome when persons visited the Pope, was also brought up to fortify their position, and led to some explanations respecting the similarity in the religious idea connected with kneeling before the Emperor and before the Pope, which the commissioners were told was only rendered to the latter by persons of the same faith. Their mistake, both in facts and inferences, was shown; for, at the English court, even subjects did not always kneel when they came into the presence of their sovereign, but only when they received the honor of knighthood, or on other special occasions; and further, no foreign ministers, American, French, or any other, ever kneeled to the Queen of England or to the Pope. Those two rulers did not demand it, no envoy had accorded it, and the American minister could not perform it at Peking.

In order to bring the debate to a point, they requested to have the ceremony which the latter was willing to perform described in a dispatch to be sent to them; but the draft submitted was declined as being too explicit. In it Mr. Ward agreed to bow very low before the Emperor, more than once if he wished; to stand uncovered, and not to turn his back towards the throne while in the presence; but he would not kneel or make the *kotau*. Instead of the word *bow* used in the draft, they wished to insert the phrase, "bend the right knee slightly, and still stand;" but after what they had said respecting the religious nature of the ceremony, and the equivocal meaning of such an expression, this was inadmissible. They concluded this conference, after it had continued five hours, by saying that they must report to his Majesty that the customs of the two countries were so unlike, it was better that no audience took place, much as he wished to honor the United States in its representative.

They had conducted their argument with tact and patience, and exhausted every fact and reason they had for its support; but to the last they were evidently unsatisfied in respect to the real usages of the West. One who has lived among the Chinese, and knows how much the prestige of the Emperor's sacred character adds to his power among his subjects, can see how important this debate was, and that the precedent now set would hereafter rule. He was ready to give up all claims to supremacy over foreign nations, but not to concede an audience to their envoys with less than was required by European sovereigns.

In the evening, the answers sent by the Russian Minister were received, and were found to be six days old, showing that the Chinese were interfering with our correspondence. In his note, General Ignatieff referred to the exasperation felt by the court at the tidings of what had occurred at Taku, and its intention at one time not to receive any of the embassies or exchange ratifications; he also intimated that he had waived his intention of paying a visit to the minister until after that ceremony had been performed, in order to spare him annoyances. It had been evident to us, from the very first, that the Chinese officers, especially our evil genius, Judge Sieh, were apprehensive of a collusion which somehow or other might be detrimental to them. The facts regarding this point are still unknown; but in relation to our going about the city, the case is more satisfactorily explained by a reference to the ideas entertained by the Chinese respecting the dignity of an embassy, whose members should not concern themselves about the trivialties of trade, at least until their public business is over; and also by remembering the peculiar circumstances of our visit after the battle. The municipal officers might well apprehend some untoward results from the crowds.

It was now supposed that nothing more remained to be done than exchange the treaty. The commissioners were obliged to go twelve miles to the summer-palace of Yuen-ming Yuen to report to their master, who was sojourning there during the hot weather, and no answer was expected till the 4th; but the next morning, the judge unexpectedly appeared. He had just come into the city with a plan of compromise which the commissioners thought would succeed. This was that they should address Mr. Ward a letter, stating that as the Emperor had decided to grant him an audience, it was necessary to state beforehand what form of obeisance he would observe in approaching the throne, that they might then make the necessary arrangements. He need only reply to this in general terms, that when he delivered the letter, he would render to him every mark of homage which he did to the Pre-

sident, without addition or diminution. To show his conviction that the audience would take place, and to give us an idea of what was to be done at it, the judge stated that it would probably take place on Monday, the 8th, and went through the details of the ceremony of presentation. The particular compromise which had been contrived between the requirements of Chinese etiquette and the obduracy of republican independence, consisted in placing the table, on which the minister was to lay the letter, before the throne in such a manner that its embroidered cover would conceal most of his person. As he approached it, he should then bow as he had agreed, while chamberlains would hastily come up to him on either side, crying out, "Don't kneel!" Those of his suite presented with him would go through the same ceremony; and then he would present the letter by placing it on the table, from whence it would be taken by a courtier, who on his knees would hand it to the Emperor.

In this way was the character of the sovereign to be saved, and the embassador to be restrained, as it were, from making a prostration which was not intended to take place. It seems like very child's play to us, who are conversant with the plain forms of Western courts, but it disclosed, at the time, the sort of discussion going on among the Emperor's counselors. We guessed that this unexpected concession of the whole point was owing chiefly to his Majesty's desire to see the foreigners, for the judge had frequently spoken of his conversations with him respecting proceedings and people at Shanghai, and said he had that morning come from the palace.

How much soever he may have wished it, the next morning destroyed all our expectations of seeing the *lung-wei*, or Dragon's Seat. The judge came back early, bringing the information that his proposition had been submitted to the privy council, and rejected. His Majesty's decision now was, that unless Mr. Ward would either actually touch one knee, or the end of his fingers on the ground, he would not admit him to the palace. This was refused, as he had been told it would be, and the question of an audience finally decided in the negative.

It is not worth while to speculate upon the reasons for this refusal; but it should be mentioned to the credit of the Chinese officials, that they never, during the discussion of five days, trespassed the bounds of politeness and courtesy; much more, they never referred to the helpless condition of twenty foreigners in the capital as a reason for compliance with their demands. The ceremony proposed by them was so liberal—and they even asserted that Lord Elgin had agreed to do it at an audience—that they no doubt believed it would be easily arranged; it was one which they could not themselves perform at court, but might be called on a dozen times a day to make when saluting their friends. If the English and French ministers had been present with the American, the three would doubtless have been presented at the Chinese court in the same manner as at their own.

The Chinese had several reasons for desiring an audience, one of which was their fear lest the rudeness of not receiving the American representative might make his nation their enemy. The Russian envoys, in days long gone by, had made the *kotau* before the Emperor; and more recently Dutch embassadors had even fallen on their knees before his name written on a yellow screen, as well as knocked their heads on the ground in his presence. One English minister, Lord Macartney, had kneeled on one knee in the same presence when Kweiliang was a lad about ten years old; and another, Lord Amherst, had offered to do so of his own accord when the same Kweiliang was about thirty-two years old. Perhaps he remembered the three last events, at any rate their record was in history. No doubt it was puzzling to the old statesman, shut up as he had been in his seclusion of office and intrigue, to conceive what changes had come over the nations outside of China, that they had so greatly altered. It was in this mood of doubt and despondency that he wrote the following note to Mr. Ward on the sixth:

"Your excellency has now been in the capital several days, and though we have had a number of interviews, when we have consulted together upon the ceremonies to be observed at the audience with his Majesty, the Emperor of China, we have not been able to come to any arrangement, owing to your firmly maintaining your own opinion; and we are quite at a loss to understand, therefore, for what purpose your excellency has come to Peking. You now say that it is needless further to discuss this matter; and as the treaty of Tientsin must be exchanged somewhere, where is it to be? We

therefore request your excellency most carefully to think over all these points, and send a reply in order that we may know what action to take."

Such a letter was easily answered by a brief recapitulation of past events. Mr. Ward mentioned the reasons why he could not comply with the ceremonies required at an audience, and quoted the invitation he had received from Hangfuh, in his first communication, to proceed to Peking, "and on the arrival of the Imperial Commissioners, to exchange the ratifications of the treaty with them." Mr. Ward closed his reply by offering to deliver them the President's letter for transmission to the emperor, as a preliminary to the exchange.

The commissioners saw that they had placed themselves in a dilemma. In dealing with such people one must take them a good deal with reference to their own ideas of things, and in this particular case the question was singularly complicated; for, if it was regarded by them as indecorous to the Emperor for a foreign envoy to refuse to see him, it was also deemed to be discourteous to the nation which sent that envoy, not to grant him an audience. Kweiliang therefore briefly answered, declining to receive the President's letter at all, but informed Mr. Ward that a place for exchanging ratifications would soon be selected and made known to him. His idea was that Peking was not the proper place, because the act would, to a certain degree, acknowledge the presence of an embassador who had declined to see the Emperor.

However, there were two cards in the game. If the Chinese commissioners refused to take the letter, Mr. Ward could also refuse to let them have the treaty. Their communication came on Saturday evening, and as it did not require an immediate acknowledgment, the reply was just ready to go on Monday, when the judge came in to learn the reason for the silence. He had a number of propositions to make, plainly showing a fear that matters had been pressed a little too far. He wished Mr. Ward to ask that Kweiliang might be appointed to receive the letter, and if he would mention any city in the north of China where the ratifications might conveniently be exchanged, the suggestion would be considered. He informed us that the Emperor was displeased at the disrespect exhibited in the refusal to see him, and had thus far declined to affix his seal to the treaty, and answer the memorial appointing a place to exchange it. Sieh finally desired, in the name of his superiors, that Mr. Ward would insert in his reply a disclaimer of want of respect to the Emperor, and an expression of regret that he found himself unable to comply with the formalities of an audience; for if he should fail of rendering him every mark of homage, not wholly inconsistent with the laws and usages of his own country, he would be rebuked by the President. This was done, and the knot untied to the release of these quiddling diplomatists, who had made it apparently merely to hamper themselves.

The next day they inclosed the imperial rescript, and concluded their own note to the embassador, informing him of their readiness to receive him at the Kia-hing temple, with the following happily turned sentence:—"Hereafter, we will cherish the same feelings of respectful regard towards the President of the United States, which you have now made known towards our own Emperor; and these sentiments will be the expression of the friendly relations which should hereafter exist between our respective nations."

The emperor's rescript is quoted entire to complete this narrative:—

"Last year several English ships came to the mouth of the Pei-ho, where they commenced a battle and wounded our officers and troops; in consequence, we gave the strictest orders to Prince Sangkolinsin of the Ghorchin tribe, to oversee the construction of defenses at Taku and the mouth of the river.

"The envoys of several nations having arrived to exchange their treaties, Kweiliang and Hwashana informed them at Shanghai that, as defenses had been constructed at Taku, they must proceed on their journey by way of Pehtang. But in the month of June, the English minister, Mr. Bruce, came to the mouth of the Pei-ho, and utterly disregarding his agreement with Kweiliang and Hwashana, wished to force his way up into the Pei-ho, even if he destroyed all the defenses placed there. On the twenty-fourth of June, the English vessels went up as far as the Ki-sin reach, and blew up the iron chains placed there, but our men did not then join battle. The next day more than ten steamers pulled up perhaps a score of iron piles in the river; they also hoisted red flags as a challenge of battle.

"The Governor-general of the province of Chihli, and others, whose duty it was, had already sent the intendant of Tientsin to inform

the English, and officers had proceeded to their ships to do so, but they were not received, for the English had already presumed to commence a cannonade on the forts. It was then that our forts began to use their artillery to repel them. Several of their vessels were much injured and sunk, and many hundreds of the foot companies which landed were killed. It is incontestable that the English brought this defeat on themselves. China did not break her faith.

"At this juncture, John E. Ward, the American envoy, in compliance with his engagements made with Kweiliang, came to Pehtang in his ship, requesting that he might go to Peking, as he was the bearer of a letter from the President of the United States Our permission was accordingly given for him to bring the letter up to the capital, where he arrived with it. This day, the ministers Kweiliang and Hwashana, have handed up the various dispatches received from him for our examination, and from them it is clearly to be seen that his sentiments are exceedingly respectful, and indicative of the utmost sincerity and truthfulness. Let the letter which the American envoy has brought be taken, and let Kweiliang and Hwashana be specially appointed to receive it for transmission to ourself.

"In regard to the exchange of the treaty, it would be proper, doubtless, to return to Shanghai to perform it; but when we reflect that the envoy has already come over the seas so far for this purpose, we now specially direct that the great Seal be affixed to the treaty, and it be delivered to Hang-fuh, the Governor-general, who is then to exchange the ratifications with the American minister at Pehtang.

"After this has been done, let lasting friendship and commerce continue between the two nations. This will show forth our great regard and kindness to people from afar, and clearly exhibit the deep respect we entertain for truth and justice. Respect this."

This document was published in the Peking Gazette, and was perhaps the first one in that paper in which foreign nations were not called by the term *i*, the word which has usually been translated *barbarian*. Considering all the points referred to, it is a moderate statement, but contains, in the last paragraph, one great ground of difficulty in maintaining friendly relations with China — the patronizing supremacy she exhibits towards other nations.

In accordance with this proposition, Mr. Ward repaired to the same place he had before met the commissioners. Kweiliang was in waiting amidst a crowd of officers, and respectfully received the box containing the letter, elevating it above his eyes, and then handing it to an attendant to place on a table, under a guard of honor, till it could be transmitted to the Emperor. He then informed Mr. Ward that the functions of himself and Hwashana as plenipotentiaries ceased with that interview. The escort would be ready in the morning as he had requested, and Tsunghau himself was present at this interview. After some desultory conversation respecting the treaty, and partaking of a collation, we parted with our friends apparently in good feeling, and returned to the Legation.*

This narrative has been chiefly taken up by the details of official business, and little room is left to describe other points. During our stay of a fortnight, we were abundantly supplied with every thing for our personal wants, at the expense of the two district magistrates, whose underlings were constantly in waiting. The weather was charming during the whole time; the thermometer seldom rose to eighty-eight degrees, and showers and sunshine pleasantly relieved each other. Some of the gentlemen went out every day, but that part of the city near Thirteenth street is miserably built; no native was allowed to conduct us to other more distant parts, and it was hard to find one's way through the streets, ignorant of the language. Divine service was regularly performed on Sundays by Rev. Henry Wood, and no officials interrupted us on those days. The city is regarded by the Russians as containing about two millions and a half of people — the native estimate of its size. It is built on a plain, and owes its extent and wealth entirely to its political importance, having no trade or manufactures aside from the supply of its own wants. "Nothing is made in Peking but edicts and mandarins," say the natives of other cities. Much of the traffic is carried on with paper money, which had become so depreciated that one hundred and seventy real copper cash could buy a thousand paper ones.

Letters were received from General Ignatieff in the evening, now that there was no reason for detaining them any longer, with copies of the *Times* newspaper to May sixteenth. These letters showed how earnestly his excellency had endeavored to communicate with us; he had even sent a protest to the Cabinet on the im-

* A picture of this presentation was published in *Frank Leslie's Illustrated News*; the *only correct part* of which was the number of Americans, every other particular being more or less inaccurate.

policy and uselessness of its restrictive proceedings. One evening some persons of that nation came to the street door, but were refused admittance by the doorkeepers, and left the place before we could satisfactorily learn who they were. Annoying as was this restraint on our intercourse with the Russians, we did not wonder at it when we learned the exaggerated report of the aid we had given to the English at the battle.

Preparations were made for departure in the morning. Dr. Sandford and Rev. Mr. Aitchison were too ill to ride in carriages, and convenient mule litters were provided to carry them to the boats at Tung-chau, which we reached in the evening of August eleventh. The water had fallen a foot, and the descent of the river was somewhat impeded by the shallow banks now laid bare. The Pei-ho (*i. e.*, White River) is more than a thousand miles in length, but not a very deep river, and in its lower portion resembles the Nile, as it cuts its tortuous channels through the soft alluvial. The navigation is obstructed about five months of the year by ice and low water, and the rapid current is at all times troublesome to sailing craft.

On reaching Peh-tsang, it was found that the kindhearted escort had sent forward the litters all the way from Tung-chau, so as to be ready in case the invalids needed them. Dr. Sandford had improved on the passage down, but Mr. Aitchison had become much weaker, and on Monday morning, August 15th, he was placed in his litter with the faint hope that he would survive to reach the ship; he died a few hours after leaving the boat. This excellent man had been a student and zealous missionary during the five years of his residence in China, and had endeared himself to all his acquaintances by his Christian virtues; the natives who knew him mourned his loss as that of a dear friend. His body was carried to Peh-tang, and buried at the anchorage.

The roads beyond Peh-tsang had become dry and smooth during our absence, and the carriages were consequently less irksome. A violent rain flooded the plain the night after, and the last fifteen miles of the way presented a dismal contrast to the first. We were able however to reach Peh-tang in time for the appointment made with Hangfuh and Wan-hiuh, with whom the treaties were to be exchanged. Files of spearmen and musketeers were drawn up on the roadside leading to the temple, in which many officials were assembled to receive the embassy. As all were present, the Chinese proposed to exchange the treaties without further delay; this was done after comparing their texts, and certificates to this effect were passed between the respective parties in the evening.

After the exchange was accomplished, Hangfuh said that the Emperor had ordered him, as a mark of consideration to the American minister, to deliver over an American prisoner, captured at the battle. Mr. Ward replied, that there could be no American prisoners in the hands of the Chinese, for none of his nation had landed on that occasion; and he should make no demand even for American citizens in their power. A young man was then introduced; and inquiries, made through a Chinese present who could talk English, disclosed the grounds the officers at Peking had for their belief in our aid on the 25th of June. This man, named John Powers, had informed the Chinese that he was an American who had landed with two hundred men; but he now acknowledged that he had said so to save his life. Up to this time, too, the imperial government had given credence to his tale, but his own denial now confirmed the counter-statements made at Peking.

The Governor-general having learned that the man was a Canadian by birth, and that the American minister could not accept him in his official capacity, asked what could be done, for the Emperor desired to liberate him. He was told that if they were willing to deliver the prisoner into the hands of the Americans on the grounds of humanity, knowing him to be a British subject, he should be received and kindly treated, and taken back to his countrymen at Shanghai; but they must first admit that he was not given up as an American citizen. After a short consultation, they agreed to hand him over, and he went aboard the Toeywan that evening. It was ascertained some months after, that this act had more than any thing else convinced the high Chinese officials in this part of China, that the Americans were not in some way connected with the English, but were an independent nation; though the impression was doubtless strengthened by its coming at the end of their visit. The ignorance of

the Chinese generally of the resources, power, and position of foreign nations is both their misfortune and their fault, and they are all suffering the sad consequences.

They were anxious about the consequences of the late engagement, and desirous to know what probable course of action the Allies would take next year. One of the inferior officers, on one occasion, wished to learn what was the value of the three men-of-war destroyed at Taku, as he supposed the Emperor must pay for them.

The Commodore and his officers hailed our return to the frigate as a pleasant relief to the monotony of an anchorage in the open sea. Supplies were brought from shore, but the Chinese government would receive nothing for them, or for the expenses it had incurred. The care and courtesy of Tsunghau, Chang and Li, the escort appointed to await on us, proved their fitness for the place. They all came off to the tender on the evening of the 18th, and we parted in the best of humor.

On the return of the Powhatan to Shanghai, it was ascertained that Ho, the Governor-general, was so much engaged in his military operations against the Nanking insurgents, that it would not be easy to obtain an interview with him to arrange the details of the new treaty. It was agreed at Peking that the new tariff and commercial regulations, which formed a part of all the new treaties, and were identical in each, should remain in abeyance until the English and French difficulties were settled, when all the new arrangements should go into effect. After some delay, an interview was obtained with Ho, who had then received instructions from Court, and he and Mr. Ward soon came to an understanding respecting the time and manner of opening the two ports of Swatau and Tai-wan in Formosa, and reducing the rate of tonnage-duty on ships — the two principal improvements upon the old treaties. There had been some misgivings on the part of our citizens in China that the Chinese had deceived us; and newspaper editors there and here, in England and in France, issued their leaders to prove that the American nation had been uncivilly treated in the person of its envoy during the visit to Peking, and its treaty had been exchanged only to be suspended in ridicule in sight of the world until those of England and France had gone into operation.

Since this visit of the Americans to the Chinese capital, there has been another of the Allies, and their treaties have likewise now been ratified. Hwashana destroyed himself on seeing the storm that was coming. The ultimatum of the English and French was rejected, Pehtang was occupied, the forts at Taku captured, Kweiliang sent again to Tientsin to treat, and rejected their demands, and finally Peking has capitulated to their arms, and the summer palace left a heap of ruins. Every one acquainted with the condition of the Chinese army, and character of the Chinese officials, believed it would be so; yet there is no great glory in destroying such soldiers, or compelling such officials, however necessary the discipline may be to the Chinese nation. One object of this narrative is to show the evidence which exists of their intention to have ratified all the treaties; for even if they have been ultimately compelled to accept the terms of their conquerors, a character is worth something, even to the Chinese.

In the struggle of races which has now commenced in Eastern Asia, the philanthropist anxiously asks what is to be the result of the conflict upon the millions of our fellow-men who have quietly dwelt by themselves during the greater part of their own and the world's history, and who are now so harshly dealt with. The isolation which has been the safeguard of the Ultra-Gangetic nations has now been rudely broken over; and perhaps it could not have been removed otherwise than violently, for it interposed a barrier, especially in China, to the introduction of all those enlightening influences which would gradually have taught the evil and folly of it. The proceedings of embassadors and the ravages of armies, are however less permanent in their influences, than the daily intercourse of trade and education, except as the results of the latter are directed in their course by the power of the former. We hear much of the negotiations and the treaties of Pottinger, Elgin, Gros, Reed, and others in the east; and the assaults, the defeats, the victories and promotions of Gough, Seymour, Hope, Grant, and others. But how weak is the influence of treaties upon the Chinese people in comparison to the insidious destruction flowing from their use of opium; or the ravages of war when weighed with the horrors of the coolie trade. It is melancholy to see, too, what a class of

desperadoes of all nations range along the coasts of China, and how powerless the rulers are to restrain their own subjects, if they can borrow the protection of a foreign flag to shield them in their piracy and smuggling. The case of the Arrow in 1856, which brought on the present war with England, was only one of many instances in China where reckless foreigners have led on more reckless natives in a course of lawless outrage.

The opium war of 1842 convinced the Chinese government of the danger of meddling with the opium trade, at least in their own way of restraining the evil, lest they provoked the wrath of England; and the present one will do much to convince them that whatever protestations of observing treaty stipulations may be made by her ambassadors, a pretext for a rupture can always easily be found. Though the ultimate good results of both these wars will outweigh, probably, their evils, yet it is much to be regretted that these erroneous impressions should remain, for it concerns all nations. England owes it to them, to herself, and above all to the Chinese, to do all she can to remove them. Her position gives her many advantages to do it, and other nations would join their influence.

What is now wanted in China is support to the government in executing its own laws over its own subjects, and the coöperation of foreign powers in shielding them against the villainy of their subjects, exercising patience at the same time with the ignorance and conceit of the Chinese, and not resorting to force at every untoward act of their officials.

If the Western powers think it worth their while to make treaties with China, their superiority in knowledge, equity, and power, imposes higher obligations to do her good, and guard the inlets of evil. The mere promulgation of a treaty will not bring the people or their officers to appreciate their obligations to observe its stipulations; this must be the work of time. The progress of disorder and misrule has been rapid throughout the empire since the opium war of 1842, and is likely to be accelerated by the recent events. The consequences will be disastrous to trade, and the advent of a new dynasty would not affect these results; for prosperity and trade depend upon security and peace, and these are almost impossible when an impoverished government, an irritated monarch, and a turbulent people, are all working together to greater oppression and anarchy. Tea and silk are products of China necessary to England, while opium is the only necessity of China—a sad and ruinous exchange in the course of years, and likely to diminish the ability of the people to produce the former or buy the latter.

We feel, however, that the struggle will be ruinous to China unless the power of Christianity interposes by its missionaries, to teach her subjects their rights and the way to maintain them, by teaching them the only sufficient rule and motive of action. See how the Chinese are treated by our own citizens in California, and we learn how little hope for good there is to a heathen people in its intercourse with a Christian, until the latter systematically begin to instruct them in the principles and practice of their own faith. As a means of opening up to the millions of Eastern Asia the highest truths and hopes of that Revelation, by whose effects we have gradually reached our present attainments in civilization, these troubles may be regarded as not unmixed evils: but will the people of God in England and America fully enter upon the vast field before them?

The progress of the insurrection headed by Hung Siu-tsiuen, at Nanking, has been so slow at times as to lead to the expectation of its extinction, but it has recently shown renewed energy. Late visitors at Suchau and Nanking have been able to learn more of the character of its leaders, and the degree of knowledge of Christianity existing among their adherents. They have found that the latter are so far behind the former, that it is very doubtful whether they are fair representatives of the movement, or can even carry the body with them in the radical changes they propose. It has always been far more a political than a religious or Christian movement, and the adoption of Christianity by the leaders has been apparently owing to the connection which they supposed to exist between the Shangti of the Confucian classics, whom the Emperor alone worships, and the Shangti of Gutzlaff's translation of the Bible. The inculcation of the tenets of the New Testament upon all their followers seems not to have formed any part of their plan; but they have every where destroyed idols, observed a Sabbath for

worship, and distributed part or all of the Scriptures; in doing which they have prepared the way by attracting attention to these writings. Let us not expect too much from the leaders, or infer that their followers fully understand even their manifestoes, much less could sway the empire on those principles. Foreign teachers coming among them may find them more prepared for a hearty reception of the truths of the Gospel, and ready to throw away their polygamy, fanaticism, and superstition, gradually becoming the real reformers of their race.

From Chambers's Journal.

GEMS AND JEWELS.*

THERE is nothing in all "the world's furniture" at once so costly and so worthless as a precious stone. The satisfaction which the contemplation of it produces is more superficial than that which is afforded by the meanest flower; for the meanest flower, we are told on high authority, may awake thoughts too deep for tears, and the finest diamond or pearl can not accomplish that. The only value they possess beyond that conferred upon them by fashion, arises from their rarity and durability; and even fashion, has first to be certified that it is the real thing, and not a counterfeit, upon which she bestows her favor, for pearls have dazzled her, before now, which had never lain in oyster-bed, and a bit of rock-crystal has more than once eclipsed the treasures of Golconda.

Not long ago, in Brazil, at Villa Rica, a free negro became possessed of a diamond so enormous, that he begged permission to present it himself to the prince-regent. "A carriage and an escort were forthwith dispatched to take him to court. Blackey threw himself at the regent's feet, and exhibited his diamond. The prince uttered an exclamation of surprise—the lords present were astounded; the stone weighed nearly a pound! The courtiers immediately set to work to find out the number of millions this monstrous jewel was worth. The great stone of Villa Rica, valued at troy weight, made a total of 2560 carats. Deducting the sixty carats for what little the stone lacked of a pound, there yet remained 2500 carats. In order to ascertain the commercial value of the stone, the carat must be multiplied by the square. The square of 2500 is 6,250,000, and estimating the carat at only 150 francs, the common price, we have the sum of 937,500,000 francs; and, as large diamonds are no longer submitted to the tariff, and as their nominal price increases in proportion as they exceed the ordinary dimensions, the Portuguese noblemen probably estimated the stone at two milliards, or, like thorough courtiers, at four. "However this may be, the inestimable jewel was sent to the treasury, with a strong escort, and deposited in the hall of gems. As Mr. Mawe was at Rio Janeiro when this wonderful discovery was made, the minister sent for him, and communicated to him all the particulars regarding the phenomenon; but at the same time expressed his private doubts of its reality. The English mineralogist was invited to examine the incomparable brilliant, and fix its value. Furnished with a letter from each minister—without which formality he could not be admitted—Mr. Mawe went through several rooms, and crossed a great hall hung with crimson and gold, in which was a statue of natural size representing Justice with her scales. Finally, he reached a room in which were several chests; three officers, each having a key, opened one of these chests, and the treasurer with much solemnity exhibited the supposed diamond. Before touching the stone, Mr. Mawe had already seen

* *Gems and Jewels. From the Earliest Ages down to the Present Time.* By MADAME DE BARRERA. Bentley.

that it was nothing but a piece of rounded crystal; he proved this on the instant by *scratching* it with a real diamond, and this luckless scratch at once annihilated all the millions supposed to have been added to the treasury. The prince-regent received the news very philosophically; but poor Blackey, who had come in a carriage, was left to travel back on foot."

The largest real diamond in the world, belonging to the Rajah of Mattan, in Borneo, is still uncut, and weighs 367 carats; it has no rival nearer than the Orloff diamond, of 193 carats. It has never been brought to Europe, though the governor of Batavia once offered to the rajah 150,000 dollars for it, as well as two large war-brigs, with their guns and ammunition, and a considerable quantity of powder and shot. The number of diamonds in the world above 100 carats' weight, including the two already mentioned, is only six; but the history of each of these —which are called *paragons*—is a romance in itself.

The *Orloff*, according to some accounts, formed one of the eyes of the idol Scheringham, in the temple of Brahma. The fame of these bright eyes having reached a certain French grenadier of Pondicherry, he deserted, adopted the religion and manners of the Brahmins, and subsequently succeeded in escaping with one of the coveted orbs. He sold the jewel to a sea-captain for 50,000 francs; the sea-captain sold it to a Jew for 300,000; and an Armenian, named Shafrass, bought it for a much larger sum, and disposed of it to Count Orloff, for the Empress Catherine, for 450,000 roubles, and a grant of Russian nobility.

The Regent Diamond is the most perfect, and the finest water of the *paragons*. It originally weighed 400 carats; but the cutting of it as a brilliant, which took two years' labor, and cost £3000, reduced its size to 137 carats. This diamond, which is also called the *Pitt*, was stolen from Golconda, and sold to the grandfather of the Earl of Chatham, when governor of Fort St. George, in the East Indies, for £20,000, although Pope suggests that that gentleman purloined it from the original thief—

> "Asleep and naked, as an Indian lay,
> An honest factor stole the gem away."

The French king purchased it for £92,000, Mr. Pitt reserving the fragments taken off in the cutting; but its value is now estimated at double the price paid for it. This jewel was pawned by Napoleon, made a political bait by Talleyrand to seduce Prussia, and stolen by robbers, who only returned it because of the impossibility of disposing of it without detection. A certain convict in the French galleys for some time enjoyed a high preëminence among his fellows as "the man who had stolen the Regent."

The Star of the South, the largest diamond ever brought from Brazil, was discovered by three wretched men, condemned to perpetual banishment in the wildest part of the interior, but who of course obtained the revocation of their sentence.

Sixth and last of the *paragon* diamonds is the Koh-i-noor, now weighing but one hundred and two carats, but supposed to have once been the largest ever known, and the same seen by Tavernier among the jewels of the Great Mogul. It is confidently asserted that this famous gem belonged to Karna, king of Anga, three thousand years ago. "According to Tavernier, this gem was presented to Cha-Gehan, the father of Aurungzebe, by Mirzimola, when that Indian general, having betrayed his master, the king of Golconda, took refuge at the court of the Great Mogul. Since it was admired by the French traveler, this diamond has passed through the hands of several Indian princes, and always by violence or fraud. The last Eastern possessor was the famous Runjeet Singh, king of Lahore and Cashmere, from whom it passed into the hands of the English on the annexation of the Punjaub: it was brought to London in 1850. "The king of Lahore had obtained this jewel in the following manner: having heard that the king of Cabul possessed a diamond that had belonged to the Great Mogul, the largest and purest known, he invited the fortunate owner to his court, and there, having him in his power, demanded his diamond. The guest, however, had provided himself against such a contingency, with a perfect imitation of the coveted jewel. After some show of resistance, he reluctantly acceded to the wishes of his powerful host. The delight of Runjeet was extreme, but of short duration, the lapidary to whom he gave orders to mount his new acquisition pronouncing it to be merely a bit of crystal. The mortification and rage of the despot

were unbounded; he immediately caused the palace of the king of Cabul to be invested, and ransacked from top to bottom. But for a long while all search was in vain: at last, a slave betrayed the secret; the diamond was found concealed beneath a heap of ashes. Runjeet Singh had it set in an armlet, between two diamonds, each the size of a sparrow-egg."

According to Mr. Tennant, the great Russian diamond singularly corresponds with the Koh-i-noor, so as to suggest that the two once formed a single crystal; and when united, they would, allowing for the detaching of several smaller pieces in the process of cleaving, make up the weight described by Tavernier.

What bloodshed, what heart-burnings, what tedious and expensive negotiations have each of these shining pebbles cost its various possessors, and how exceedingly small the gratification of having obtained them at last, independently of the soothing thought that nobody else has got them! If it were not useless to lift up our single voice against an almost universal custom, we would ask what more barbarous and outlandish usage can be imagined, than that which obtains even amongst our king's daughters and most honorable women, of drilling a hole in the lobes of their ears for the reception of a jewel? and why are they so ready to exclaim "savage" against a maiden who may similarly adorn her nose? Let us, however, be thankful that in these days, if not cured of our lunacy, there is at least some measure to our madness in connection with precious stones; that no monarch of a starving people would now offer three millions of crowns for the possession of a useless diamond, as Louis XV. did; and that no living Englishman would so mistake the meaning of loyalty to his queen, as to grind a pearl worth £15,000 into a cup of wine, in order to fitly drink her health, as did Sir Thomas Gresham. This plagiarist from Cleopatra has had many a rival in more modern times. The courtiers of Louis XV. were wont, in their insane extravagance, to pulverize their diamonds. "A lady having expressed a desire to have the portrait of her canary in a ring, the last Prince de Conti requested she would allow him to give it her; she accepted, on condition that no precious gems should be set in it. When the ring was brought to her, however, a diamond covered the painting. The lady had the brilliant taken out of the setting, and sent it back to the giver. The prince, determined not to be gainsaid, caused the stone to be ground to dust, which he used to dry the ink of the letter he wrote to her on the subject."

As to the association of gems with dress, the accounts of past extravagance which Madame de Barrera gives us in this volume, are of a nature to make paterfamilias shudder, inured to crinoline though he be. Nor were the ladies by any means the only spendthrifts. One court suit of King James' "Sweete Gosseppe," the Duke of Buckingham, cost no less than £80,000. Nay, to come quite close to our own times, when Murat took refuge in Corsica after the fall of the empire, although he had in money but 10,000 francs, which he carried in his belt, the band around his hat was worth 90,000; one of his epaulets, 50,000; while he carried about with him two diamonds valued at 200,000 francs. In all ages, in short, and in all countries, this passionate admiration for precious stones has been exceedingly remarkable; and they have been used in Holy Writ itself, for the most solemn comparisons, and to denote the highest degree of perfection—the New Jerusalem, even, being revealed to St. John under the figure of an edifice with a wall of jasper, while each of its twelve doors was a single pearl.

In the Talmud it is asserted that the ark was lit only by precious stones—so that the famous question "Where was Noah when his candle went out?" would seem to be to the last degree unauthorized and extravagant. From the same venerable pages we learn that one object in nature is alone to be esteemed of higher value than pearls—namely, a pretty woman. "On approaching Egypt, Abraham locked Sarah in a chest, that none might behold her dangerous beauty. But when he was come to the place of paying custom, the collector said: 'Pay us the custom.' And he said: 'I will pay the custom.' They said to him: 'Thou carriest clothes,' and he said: 'I will pay for clothes.' Then they said to him: 'Thou carriest gold,' and he answered them: 'I will pay for my gold.' On this they further said to him: 'Surely thou bearest the finest silk;' he replied: 'I will pay custom for the finest silk.' Then said they: 'Surely it must be pearls that thou takest with thee,' and he only answered: 'I will pay for

pearls.' Seeing that they could name nothing of value for which the patriarch was not willing to pay custom, they said: 'It can not be but thou open the box, and let us see what is within.' So they opened the box, and the whole land of Egypt was illumined by the luster of Sarah's beauty — far exceeding even that of pearls.'"

And this pretty story in connection with "gems and jewels" is the only piece of sentiment or poetry which we remember to have been shed upon the custom-house authorities of any nation.

From Fraser's Magazine.

THE PROGRESS AND PROSPECTS OF ASTRONOMY.

The precedence which astronomy has long claimed among the sciences has been very generally accorded to her without hesitation. No tract, indeed, of the domain of intellect is so dull and rugged and dreary as to be without its admirers. Among the almost infinite diversities of taste and capacity in the great family of mankind, there is room for every pursuit, and some that appear to common apprehension sufficiently barren of interest have found zealous votaries. To many minds the study of abstract arithmetic would offer no great attraction, yet Legendre has observed that it almost always becomes a species of passion with those who give themselves to it at all; and such must have been the case with Baron Maseres, of whom it is said that "his leading idea seems to have been to calculate more decimal places than any one would want, and to reprint the works of all who had done the same thing." Others again, leaving on the surface the ordinary pleasures of music, delight to plunge into the depths of counterpoint, to enumerate the "commas" that separate the "extreme sharp sixths," from the "diminished sevenths;" to puzzle over the alleged fact (a very curious one, by the way,) that on an organ with an enharmonic key-board the wrong note, in certain passages, produces a better effect than the right; and, with Dr. Pepusch, "readily jump to any conclusion that would involve a musical question in mysterious and artificial difficulty;" while others there are to whom the sublimity of Homer or the dignity of Sophocles would appear to be less attractive than some dialectical peculiarity in their diction; who care more for orthography than for thought and feeling, and wrangle over an illegible contraction in a musty old copy with a vehemence which to the uninitiated seems very amusing.

We do not deny that these, and such as these, are all legitimate objects of pursuit. We would not insinuate the slightest disparagement to any species of research whose object is consistent with our duty to God and our neighbor. So far from it, we are perfectly of George Herbert's opinion, that "there is no knowledge but, in a skillful hand, serves either positively as it is, or else to illustrate some other knowledge." We rejoice that in the wide circumference of nature and art there is a mind for every thing, and room for every mind; and we have no doubt that it has been so ordered in perfect wisdom by the great Creator of mind and matter. Still, there is room for choice also; all subjects are not alike; some will ever be the delight of a small minority; others embrace a broader range of sympathies: and at the head of all we shall be justified in placing astronomy. Men of most various tastes and feelings in other respects, have concurred in doing homage to this glorious science: the astronomical lecturer is pretty sure of a full and attentive audience; and astronomical publications are continually swelling the torrent that flows from the modern press. It is worthy of remark, too, that this direction of the public taste

seems to be progressive. The demand for telescopes has wonderfully increased of late years; and the instruments which are called for, if not of great magnitude, are by no means contemptible in their performance. Whatever may be the cause of this,—whether the diffusion of liberal education among the middle classes, or the diminished cost of optical means—for in our own recollection the purchase of a good achromatic was a serious undertaking, and not unlikely to lead to "second thoughts"—the fact is evident, and we regard it with great pleasure. Nothing can be more calculated to expand the mind and elevate the thoughts; nothing provides a more interesting source of study for "retired leisure," or relaxation for the spare hours of a busy life. In one respect alone the microscope has a manifest advantage in its exemption from those atmospherical disturbances which so often muddle and confound telescopic vision, and grievously reduce the number of hours available for its employment; but even this serious and undeniable drawback has not interfered, and we venture to predict will not interfere, with the popularity of this sublime science—this *ὑπερσεμνος ἐπιστημη*, as Synesius happily called it, with much less reason for his expressive epithet than has been apparent to succeeding generations.

Fortunately, too, for astronomy, the aspect of the heavens has of late years brought her pretensions prominently forward. The expectation of the celebrated comet which drew, as is said, from the Emperor Charles V. the exclamation—

"His ergo indiciis me mea fata vocant,"

though hitherto frustrated, has kept the subject alive; and the disappointment has probably been more than compensated by the beautiful "Donati," so universally admired in its splendor, so generally regretted in its departure; and the expedition to Spain on the occasion of the late solar eclipse has also been a theme of public observation, though the effect of the distant report was trifling, compared with what would have been the result had that eclipse been total in our own country. All who have eyes to see and feelings to be affected, have concurred as to the astonishing impression of a total eclipse of the sun; an impression not diminished by our perfect acquaintance with its cause, nor weakened by the unerring anticipation of the moment. Together with the mystery, science has at length removed the apprehension of evil consequences, but it has by no means dissipated the strange and peculiar awe which attends this "darkening of the earth in the clear day:" the peasant and the philosopher alike own the solemnity of the scene; and the astounding shout of nearly twenty thousand spectators at Perpignan in 1842, at the extinction and return of the solar beam, attested magnificently the universal feel- of mankind. Stukeley, on Salisbury Plain, in 1715, and Airy, at Turin, in 1842, have given us fine descriptions of the scene; and Mr. Perowne, on the recent occasion in Spain, has well expressed its character:

"The wind came to us cold and chilly, as from some sepulchral vault. And now, three or four minutes only before the total obscuration, we see the great shadow come sweeping along down the mountains and over the plains. I know not whether to call it shadow, it seemed so to fill the air, as well as to pass over the ground. It is commonly spoken of as 'the shadow,' but the word is inadequate. It is neither shadow nor vapor, nor can any one word describe it. . . . I have seen no darkness like the darkness of this eclipse. It has no resemblance whatever to the darkness of twilight or of night. Not so deep as that of night, (for at no time was it too dark to read,) it was far more solemn. It is impossible to describe the awe which came over us all, in spite of the unwonted excitement which we had felt. I do not hesitate to say that the whole scene was by far the most wonderful I have ever beheld. There is no phenomenon in nature that can compare with it in interest. The only regret we felt was that we had not more eyes, or that the totality could not last longer."

Short, however, of complete obscuration, the spectacle loses nearly all its grandeur. A very small portion of the sun's disc left uncovered gives light enough to deprive it of its peculiar awe; and from this circumstance our own country has for a very long period been altogether unfortunate in this respect. We have had no total solar eclipse, at least in London, since 1715, when Halley thought it expedient to publish a map of its course beforehand, lest the darkness should be thought ominous as to the fortunes of the Hanoverian dynasty: nor will its recurrence take place till the year 1887. In the lapse of ages it is evident that every part of the earth's surface must receive

successively an equal amount of obscuration from the shadow of our satellite; but as so much of our globe is covered with water or with sand and rock, this glorious scene has oftentimes been reserved for the wandering and terrified savage, or for "them that remain in the broad sea;" while in the circumscribed districts inhabited by intelligent and observant races of men, its recurrence at any given spot is infrequent and in appearance irregular, though governed in reality by laws of the strictest precision; and thus it has happened that England, for so many a long year, has never witnessed the event. France, Italy, South Germany, and Russia in 1842, Sweden and Norway in 1851, and Brazil in 1858, were more fortunate; and to Spain her own opportunity was granted during the past summer. Of late years the scenic phenomena, of which the naked eye takes cognizance as effectually as the telescope, have received a new and more exciting interest from the detection of the marvelous prominences or so-called flames, usually though not invariably described as of a rosy hue, which are found to encompass the black mass of the moon when the sun is wholly concealed, but which are demonstrated, and more clearly so than ever on the recent occasion, to belong, not to it, but to the luminary over which it is passing. These glimpses so rarely attainable, of the fiery region condensed around the central globe of our system, have opened out veins of inquiry and speculation till of late quite unsuspected; and it is not surprising that the occurrence of a great eclipse in a country so comparatively near and accessible as Spain should have attracted to its arid heights a host of accomplished and eager observers, not wholly of the stronger sex, undeterred by the inconveniences of the Bay of Biscay or the habits of peninsular life. It is matter of public congratulation that this expedition has proved entirely successful, and that its result has justified the liberal encouragement it received from the governments on either side of the water. And after all, the infrequence in later times of total solar eclipses in England is somewhat the less to be regretted, when we bear in mind the peculiar disqualification of our climate. None, perhaps, but they who have enjoyed the advantage of foreign travel, can fully appreciate the superiority of other regions in this respect, if in this alone. And if we are proud, as every Englishman ought to be proud, of our country; if we are justly proud of her liberty and her laws, her resources and her spirit, her homes, and above all, her altars, yet no such preference can be extended to her skies; no amount of national feeling can uphold the character of our vapor-loaded, turbulent, and uncertain atmosphere.

And yet it is in England—in rainy, cloudy, misty, damp, boisterous, somber England—that the science of astronomy is of late receiving a strong development, at any rate in the direction of popular attention and general interest. We are not speaking of theoretical astronomy, long since pushed to so great an extent by the French analysts, and subsequently cultivated in Germany and America with most honorable degrees of ardor and success; but of that very delightful and far more accessible branch of the study known in observatory language as mere "star-gazing," which, after all, is able to grasp so much of the sublimity, so much of the beauty of the pursuit, and which alone is conveniently within the reach of those whose principal aim in life is of another nature. It is on this more familiar department of the science that we now propose to offer a few remarks, leaving wholly on one side, or rather above us, the discussion of those wonderful trains of thought, and reasoning, and computation, by which astronomy takes its high standing among mathematical investigations, but in which general readers would find little that would be intelligible, and still less that would be attractive.

Much indeed might be said of the extraordinary increase of accuracy in those micrometrical measurements which are the means at once of testing the correctness, and urging on the progress of theory; and of the marvelous ingenuity, delicacy, and refinement of the minute contrivances which are now employed for this purpose, and which lead modern observers to talk familiarly of *hundredth* and even *thousandth* parts of seconds. Something, too, might be added on the danger, it is to be hoped more apparent than actual, of a kind of pedantry or ostentation in these extreme subtleties, as well as on the curious sources of error which occasionally mortify the observer, and detract from the value of the computer's labor. The whole business of tele-

scope-making in its present advanced state would also furnish materials for an extended essay, which, including its connected ramifications and anecdotes, would we believe, prove more curious and interesting than might be commonly imagined. But, fond as we are of the workshop, and well pleased from old associations with the mere look of putty and colcothar, and the smell of pitch and *aqua mirabilis*, we shall not take our readers among those mysteries so seldom penetrated by the uninitiated eye; but introduce them in the prosecution of our subject, to the results of the optician's practical skill, and ensconce them in the private observatory of some kind-hearted and public-spirited astronomer, who does not mind being bored by the curiosity of strangers; or, if they are not afraid of "night-air," which the acknowledged longevity of observers would alone prove to have been most unjustly calumniated, we will introduce them to our garden—for we do not boast of an observatory—and get our own "great gun" in position for their amusement; not indeed one of the largest, but of no small brilliancy and power; and in order that they may judge for themselves whether we have unduly magnified our favorite science, they shall see what Alvan Clark can show them.

And who, some of our readers may ask, is Alvan Clark? He is a man of whom we do not know much, but what we do know is a little out of the common way. Educated as a portrait-painter, and capable of painting a clever likeness from a photograph of a person whom he has never seen, he took to optical work, and so distinguished himself in a pursuit requiring the combination of peculiar delicacy of manipulation with ingenuity, and tact, and judgment, that his object-glasses have rivalled those of the celebrated "Optical Institute" at Munich, which has long, under the names of Frauenhofer and his successor Merz, enjoyed almost a monopoly of European reputation. Not content with these

> . . . "arts that wait on wealth's increase,
> Or bask and wanton in the beam of peace,"

he has united to them the perfection of American rifle-making, and rifle-practice too, without discontinuing his optical labors, and without ceasing to produce object-glasses, of which it may be said, with no disparagement to the achievements of Dallmeyer (late Ross,) Cooke, Merz, Steinheil, Fitz, or Sécrétan, that those who possess them may feel perfectly satisfied with their acquisition.

The sun is yet above the horizon. Shall we ship our screen glasses—not the odious old red, with all its heat and glare, but the beautiful cool deep blue-gray—and commence our study with those fearful-looking gulfs which deface his splendor? We had better not. Too near the horizon no celestial body is a good telescopic object. The greatly increased extent and density of atmosphere which the rays have then to traverse, though found but little prejudicial by Lassell when he wielded his superb twenty-four-inch mirror in the pure Maltese heavens, in our northern climes is an entire bar to accuracy of observation, or indeed comfort; for no one would wish to see the smooth circular limb of the sun all boiling and fluttering with undulations innumerable. Dawes and Secchi can tell us of its wonders; of the amazing extent through which those yawning cavities open or draw together in the space of a few days—frequently becoming visible to the naked eye (notwithstanding the singular blunder of the Czar's observer, W. Struve, in asserting the contrary,) if people would but look for them; changing in form and varying in aspect literally from hour to hour, and giving the impression of a surface in a state of continual fermentation and disturbance. They would tell us how those comparatively black openings, or *nuclei*, are often again pierced, as it were, with spots of a more intense and absolute blackness as well as encompassed with *umbræ*, or *penumbræ*, clouds of fainter shade; and how, in rare instances, symptoms of spiral arrangement or circular motion seem to indicate—as the sagacity of Sir J. F. W. Herschel had anticipated in his memorable Cape observations—the existence of immense equatorial tornadoes and whirlwinds, in a fiercely agitated atmosphere resting upon an ocean of flame. We shall hear, too, of the *faculæ*, or brilliant streaks, which are congregated towards those dark gulfs, and one of which Dawes has traced as an actual prominence on the profile of the limb, thus establishing the fact intimated by their general aspect, that they are ridges or elevations, resulting from widely-felt displacement, and proving that the unknown material

of the luminous envelope of the sun does not instantly or readily recover its state of equilibrium. These are surprising disclosures; but we should be still more astonished to hear of that temporary outburst of light which two separate observers, Carrington and Hodgson, using two different modes of observation, witnessed in front of the sun's disc on September 1st, 1859; giving to the inhabitants of the earth the first recorded intimation, since the conversion of Saul of Tarsus, of a light far more vivid than even the solar blaze. Was it a huge meteor—could it have been a comet—that then fell into an atmosphere of oxygen, and perished? or, more probably, according to Newton's suggestion, refreshed the material of our central fire?

But it is time for us to proceed to other objects, in the hope, whether reasonable or not, that our knowledge of these marvelous phenomena has not yet reached its bound. We may pass by, with little notice, the very problematical discovery said to be made by M. Lescarbault, and wait for more evidence before we recognize the existence of a celestial "Vulcan." (How much, by the way, it is to be regretted, even if it possesses some convenience, and has been thought inevitable by high authority, that the memorial of a debasing and corrupting mythology should not have perished with it; at any rate, that it should have been thus perpetuated amidst the sublimity and glory of the heavens!) We need not now stay to discuss the unknown nature of those opaque bodies which unquestionably have, from time to time, traversed the face of the sun: the evidence, though abundantly sufficient, throws very little light upon their constitution. Nor, indeed need we wait long in attendance upon the planet Mercury; for though he possesses probably his full share of wonders, nobody has ever known any thing about him in comparison except Schröter, and his assistant, Harding: the mountainous prominences and dark atmospheric bands (or more probably openings in his atmosphere) of which they tell us, remain unverified; still it is but fair to express the opinion, that this may be only, or chiefly, for want of pains in the verification. It has been the fashion, both in Germany and England, to overlook the unquestionable merit of Schröter, and, to a considerable extent, to ignore his discoveries; we notice with pleasure that more justice has of late been done to him by no light authority—the leader of Transatlantic observers, Bond; and though mistakes may be here and there fastened upon him, his painstaking industry and self-evident truthfulness should not pass without due acknowledgment on the part of his successors; some of whom, we fully believe, would have found the advantage of paying more attention to his announcements. His twenty-seven (twenty-six English) feet reflector, with an eighteen-inch mirror, the work of Professor Schrader, seems to have been superior to any instrument of its day—those of his cotemporary, Sir. W. Herschel, alone expected; and his observatory of Lilienthal (not far from Hamburg) continued for many years at the head of all similar establishments on the Continent, till it was dismantled, as he pathetically laments, and his own income greatly curtailed, by the barbarian irruption of the French troops in Hanover, an event which he survived, partly in enfeebled health, only a few years, dying in 1816. Which of our observers will take up the planet Mercury where he has left it, and make known to us what may probably be known without any great difficulty as to its physical constitution?

At present we will proceed to interrogate the next in order,

"Yonder Venus in her glittering sphere."

Can there be a lovelier object in the purple sky of evening, or a more brilliant instance of reflected light? We have repeatedly noticed the shadow cast by the vivid little crescent, whose actual form, we are told by Lieutenant Gilliss, one of the members of an American scientific expedition, may be distinguished in the sky of Chile by the naked eye; and we can well recollect how we used to astonish our fellow undergraduates of Oxford, many a long year ago, by pointing out to them the minute speck of purest white which marked her position in the light of broad day; nor is it long since we saw a lady pounce upon it under similar circumstances, with great facility. Nevertheless, Venus is not the most favorable of telescopic objects; with her, the achromatic is untrue to its appellation, and the colored fringe that spreads around her brings out in full strength the "secondary spec-

trum" which results from the imperfect balance of its opposite errors. For the achromatic object-glass is composed, as some of our readers may possibly not be aware, of two lenses of different kinds of glass and opposite curvatures, which in theory are supposed to neutralize each other's prismatic action, (every lens partaking of the form and properties of a prism,) but which in practice accomplish this purpose only to a certain extent, leaving a residuum of colored light; and no object is found more disagreeably competent to exhibit that residuum than this glorious planet. Nor will the pure and colorless image of the reflector, free as it is from any such defect, give us much more information; few are the cases where brilliancy is disadvantageous, but it is so here; we find old Herschel complaining that with Venus the light of his forty-feet reflector was an inconvenience; and a very much smaller aperture will collect enough to dazzle and perplex the eye. An easy remedy, however, is open to us in daylight observations, such as we may now be supposed to have before us. There, ladies and gentlemen, is a lovely object—a half moon, of exquisite delicacy and pearly hue, differing, however, from our satellite in the much fainter aspect of the inner part of the semi-disc, towards the rectilinear edge. And that half-illuminated planet, as you now see it in the telescope, appears to you four times as large as the moon to the naked eye. Impossible, Mr. Astronomer! you tell us some strange things that we are willing to believe; but this is really going rather beyond the mark. Just so. We did not imagine you were likely to believe it at first. Few people, till they are accustomed to telescopic visions, have any idea of the size which objects appear. They always look too small for the supposed power. Yet our statement is not assertion, but demonstration. We are using an eye-piece magnifying three hundred times; Venus is now about twenty-four seconds in diameter; the moon is nearly thirty minutes; by a little easy arithmetic you may fully satisfy yourselves of the fact. But how are we to know that your eye-piece does magnify three hundred times? That, indeed, you must take upon trust; it requires a little mathematical knowledge to understand the demonstration, but the demonstration itself is as unquestionable as that five times sixty are three hundred. But, if the moon were now in a suitable position, we would give you a very easy proof indeed—a strictly ocular demonstration; for you should look at the same time with one eye at Venus in the telescope, and with the other eye at the moon out of the telescope—no difficult matter when they are near together; and then, if you do not find that the planet's image would cover the moon four times over, we have nothing to say. But why it is that these telescopic images appear so much too small is rather a puzzle. The explanation probably lies in the opposite circumstances of vision; in one case, a free open sky; in the other, a narrow limited field; natural *seeing* against artificial *peeping;* the perfect sharpness of the real object against the comparative definition of the optical image—some, or all of these may help the difficulty—but if they do not, we must refer you to Herschel or Lassell, or some one who can explain it better; but the fact is certain. Now look again at that beautiful planet; you think you can make out spots and mottlings and wavering uncertain shades, and perhaps you do; and you may look upon twenty evenings and have the same impression, and yet never be able to fix on any certain form or outline; and you would have many of the first astronomers to bear you company; such is the testimony of the present Herschel in his admirable *Outlines of Astronomy;* "the intense luster of its illuminated part dazzles the sight, and exaggerates every imperfection of the telescope; yet we see clearly that its surface is not mottled over with permanent spots like the moon; we notice in it neither mountains nor shadows, but a uniform brightness, in which sometimes we may indeed fancy, or perhaps more than fancy, brighter or obscurer portions, but can seldom or never rest fully satisfied of the fact." But old Bianchini the Roman ecclesiastic, who seems, by the way, to have been a very respectable, estimable kind of man, was more fortunate in 1726. The telescopic apparatus of that day was alarming in its cumbrousness, and one of its arrangements reminds us somewhat of the mainmast of a schooner entangled in a gigantic pair of lazy-tongs; yet he thought so highly of it as to have it engraved for the benefit of posterity—and in some respects it deserved it, not only for its ingenuity, but as a specimen of the age, and of the brave

"pursuit of knowledge under difficulties." It was, however, by the simpler contrivance of Huygens, who tied the object and eye-glasses together with a long line, that Bianchini was enabled to detect and map out a series of continents and oceans, as he thought them, of which Cassini had previously made out some traces, but which—at least in their connection and completeness—have escaped every subsequent observer, till De Vico and other astronomers of the Jesuit fraternity, re-discovered them in 1839 with a six and one-third-inch achromatic by Cauchoix, the property of their society, harbored in the the observatory of the Universitá Gregorina of the late pope. That instrument certainly showed them some queer things before the Roman insurrection in 1848 sent it, with some of the brethren, on a Transatlantic journey; and the observers paraded them before the astronomical world in a fashion which showed that their scientific must have been very inferior to their theological astuteness. But still it seems to have been a good glass, though under-polished; and they made it sometimes bear a power (a reputed power at least, which is often a very different matter) of eleven hundred and twenty-eight even upon Venus; and the consent of several observers seems to confirm in full the accuracy of Bianchini's drawings. They claim no less than eleven thousand eight hundred mitrometrical measures, and certainly appear to have taken a great deal of pains. If Schröter, half a century earlier, had, like most other people, made out little of these shadows, he established a mountainous and irregular "terminator," or boundary line of light and darkness, an atmosphere denser than our own, and a day and night of similar length to what we know. Sir W. Herschel, less successful, attacked him with an asperity which (*pace tanti viri*) seems to betray a slight tinge of personal feeling; Schröter replied in the *Philosophical Transactions* for 1795, with much courtesy and firmness. We examined this controversy pretty carefully some years ago, and the result was entirely in favor of the astronomer of Lilienthal. Some of his discoveries, especially the differing aspect of the horns of the crescent, and their rapid variation in thickness and sharpness, have since been verified by Mädler. May we not look to Dawes, armed with Alvan Clark's eight-and-a-quarter-inch beautiful object-glass and clock-work movement, for the rest—and more? But we fear that no one will give us any very good explanation — for Arago's "negative visibility" can not be called an explanation—of the curious but undoubted fact, that the unilluminated part of this planet is sometimes visible, and has been seen even in broad daylight. We can readily account for this appearance, this "ash-light," on the moon, which has the earth's broad face shining upon it; but that light must be quite inconsiderable at the distance of Venus; and there is nothing else to shine upon her. She may, perhaps, be phosphorescent — a quality possessed but in a faint degree by terrestrial materials, though more generally so than might be supposed, as Mr. Wilson long ago proved by his experiments in a thoroughly darkened chamber—but there this quality must be supposed to be developed in a much fuller degree. But what of the satellite of Venus? That is a very curious story, pretty nearly as mysterious in its way as the tale of Casper Hauser, and it deserves bringing into notice; but we have no room for it now—

> "fugit irreparabile tempus
> Singula dum capti circumvectamur amore."

We must return homewards. How happy should we deem ourselves if, in so doing, we could only get one fair view of the back of the moon, and test Hansen's ingenious conjecture, built on a deep refinement of mathematical theory, that, in consequence of a slight but appreciable difference between its center of figure and its center of gravity, somewhat displaced by the neighborhood of the earth, its other side may be destitute of neither water nor air, and not incapable of sustaining inhabitants like ourselves. But this we shall never be permitted to know, at least in this life. We must content ourselves with what we can see, and that truly is enough to excite a lifelong wonder. No need either in order to appreciate it, of the colossal fifteen inch object glasses of Merz at Poulkova under the autocratic eagle, or at Harvard University under "the stars and stripes," or of Lassell's exquisite two-feet specula, so wonderfully finished, with a previous certainty of success, by means of a polisher of nothing but deal coated with pitch;

or of the four-feet mirror he is finishing, or perhaps has finished; or of De la Rue's of thirteen inches in diameter, smaller indeed, but, as we can testify, admirably perfect. Bad indeed must be the instrument that fails us here, and worse than Galileo's early effort—the little seed from which such a countless harvest of optic tubes has sprung. The one we are supposed to be using will astonish us by its revelations; and indeed its amount of light will be wearisome to a feeble eye. What a chaos of explosive action lies before us!—a surface blown up in literally many thousands of places, from the smallest pits which just dot the surface in our great telescopes, to the broad volcanic lakes, whose flattened interiors are as big as whole English counties, and are encompassed by stupendous girdles of ridges and peaks which might stand in proud rivalry among the Apennines or Pyrenees, nay, which sometimes overpass the loftiest Alpine summits. In point of dimensions, nothing on earth is to be named with these wonderful cavities, though their analogy with some of our own volcanic districts has been repeatedly pointed out, and of late beautifully exhibited by Professor Piazzi Smyth in his most interesting publication on the Peak of Teyde, more commonly known as *Teneriffe*. Others, again, of the lunar elevations, though possibly due to a similar eruptive or extrusive agency, are equally astonishing in their rectilinear extent. It is a glorious thing to wander in the mountain solitudes of our own planet; nevertheless, he who has stood in the pine forest at the edge of the Plateau des Bioux Artigues and looked up to the cloven crest of the mighty Pic du Midi d'Ossau, or has traversed the great Scheidegg and the Wengern Alp beneath the shadow of the almost vertical steeps of the Wetterhorn and the Eiger, can form but a very feeble idea, either as to height or extent, of the precipices of the Lunar Apennines. Nor is the cleft of Lauterbrunnen, wonderful as is its aspect, especially in the descent from the Wengern Alp, more than a miniature of that wedge-shaped valley of the Lunar Alps, which was first figured by Bianchini, and which every observer of our satellite has seen, or ought to have seen—a very different thing by the way—the old apologue "eyes and no eyes" being not limited in its application to the days of youth. In fact, with a few resembling features, the general arrangement of the lunar surface is much contrasted with that of the earth. Though our steppes and prairies are well represented by the broad gray plains, we have but little that corresponds either in character or extent with the wonderful circular configuration into which so large a portion of the moon is thrown; and the cracks or furrows which intersect such extensive regions are still more dissimilar to any thing except the artificial features of our globe; on the other hand, all the beautiful variety introduced by water in its different forms and positions seems there to be wholly unknown. What a pity it was that the keen eye of Gruithuisen was so ill-matched with a wild imagination! More of his lunar discoveries were verified by other observers even at the time than might have been supposed from the subsequent evanescence of his fame; and more, we suspect, may still be recovered by those who will take the necessary pains. His predecessor Schröter, less lynx-eyed, was far more trustworthy; and his pains-taking and honest labors, exhibited in two thick quarto volumes half made up of very ill-engraved designs, may still be consulted, we are of opinion, with more advantage than has been admitted by the highest lunar authorities, Beer and Mädler. Nevertheless, though their work may be a little biassed by the desire of originality, it is a wonderful instance, together with the splendid three-feet map of which it is the counterpart, of diligence, perseverance, and accuracy. Lohrmann's plates, published somewhat earlier, seem patterns of unsightly fidelity in a conventional style. His undertaking, unfortunately left incomplete from his failing vision, has, it is said, been recently completed by Schmidt, the well-known observer of the solar spots. But though very much has been accomplished, a separate and detailed examination of insulated regions recorded in large and often-repeated drawings—a "Selenotopography" in short, as laborious as that of Schröter, but far more delicate and minute—is required before we can be said to know thoroughly the surface of the moon, or can be in a position to draw secure conclusions. The "Moon Committee" of the British Association are understood to have something of this kind in hand; and Nasmyth, the inventor of the celebrated steam-hammer, is said to be medi-

tating great things with a reflector which collects as much light as the eye is well able to endure. Whoever undertakes any portion of this task ought self-evidently to be possessed of a certain amount of artistic talent, such as has been displayed for instance, in the drawings of the "Mare Crisium" by the Astronomer Royal for Scotland, Piazzi Smyth, published in the *Edinburgh Transactions*, or the designs will never prove very satisfactory. In the exceedingly curious department of Lunar Photography, Warren De la Rue stands altogether preëminent, and some of his inferences begin to be very fascinating. His hints as to the possibility of vegetation, and an atmosphere enveloping merely the lower regions of the moon, are original reproductions, if we may be allowed the expression, of Schröter's ideas derived through an entirely different channel, and deduced from actinic instead of optical appearances. Our own impression is—and it is not one deduced from investigations of yesterday—that though the luminous eruptions of Sir W. Herschel, Captain Kater, and others, were mere illusions arising from reflected earth-light, (about the varying intensity of which, however, some mystery hangs,) another generation will admit the continuance of the same explosive action which has so extensively modified the lunar globe as an unquestioned fact; its diminished manifestation, as compared with the terrific energy of earlier epochs, corresponding significantly with a similar decrease of volcanic activity on the earth. We have already referred to the researches of Piazzi Smyth at Teneriffe, so interesting in this point of view, and we must do so again, for that worthy son of a worthy father has produced one of the pleasantest books of modern days, as well as one of great scientific importance; nor should Mrs. P. Smyth's share of so adventurous an enterprise be passed by without the expression of due honor. In fact, the gentler sex have taken their part, if not extensively, yet uncommonly well, in astronomical labor. In early days "honest (*brav*) Kirch," as Olbers calls him, had his Maria Margareta to help him. The fame of Caroline Herschel deserves to be coëxtensive with that of her illustrious brother;

"Gloria, sideribus quam convenit esse cœvam,
Et tantum cœlo commoriente mori;"

and the aid that poor, weary, and worn-out Fallows received from his wife at the Cape of Good Hope ought never to be forgotten. But to return to Piazzi Smyth. While cordially advising the perusal of his *Teneriffe*, let us hope that the spirited author may yet have other opportunities of recording the results of his "astronomer's experiment" above the clouds, and of again and again affording similar pleasure and interest to his readers.

THE CATHEDRAL OF ST. DENIS.—The works which have been some time in hand at the Cathedral of St. Denis are approaching completion. The most curious portion of the building is the crypt of the Carlovingian kings, which formed a part of the third church raised on the same spot, the first having been erected over the tomb of St. Denis before the invasion of the Franks; the second by Dagobert I., about the year 603; the third by Charlemagne, in 775; and the present structure in the twelfth century. This ancient crypt was found tolerably preserved, and has been repaired with great care. It contains at present the remains of Louis XVI., Marie Antoinette, and the aunts of the former, with those of the Duc de Berri and one of his children, the Prince de Condé and Louis XVIII. The new crypt, which has been constructed to receive the ashes of the members of the Bonaparte family, is placed beneath the transept and a small portion of the chancel, and immediately west of the Carlovingian tomb, thus bringing the two extremes into contact. It is very large, and consists of a central space and two side aisles. At the east end of the former is a small altar, lighted by means of a window or skylight behind the altar of the church.

HOW TO GET A GOOD FRAME CHEAP.—Live temperately, be abstemious, cultivate early hours, rise with the lark instead of going to bed after one, take plenty of exercise, don't be afraid of lots of cold water, make a practice of always being cheerful, avoid debt, draughts, bad company, bills, and wet feet, and you will soon get a good frame cheap; and it shall be a frame, moreover, worth more than its weight in gold, such as shall inclose the very picture of health.

From the Dublin University Magazine.

A MEDIÆVAL PATRIOT: PRINCE SCANDERBEG.

SCANDERBEG, PRINCE OF EPIRUS.

"Land of Albania! where Iskander rose
Theme of the young, and beacon of the wise;
And he, his namesake, whose oft-baffled foes
Shrank from his deeds of chivalrous emprise."
LORD BYRON: *Childe Harold, Canto II.*

THIS remarkable warrior of the middle ages has furnished materials for no less than three English tragedies and a novel in French. The records of Scanderbeg's life and actions approaches Eastern fable. As we turn to it, we are tempted to say with Gibbon, when writing of Richard Cœur de Lion in Palestine, "Am I relating the deeds of Arthur or of Amadis?"

The historian of the Roman Empire, who bore no great affection to Scanderbeg for resuming Christianity in mature life, nevertheless thought so highly of his great qualities, that he included him, with several others, in a list he had selected as subjects for biography. Why he laid this intention aside he has not told us.

Avoiding exaggeration as much as the materials will allow, the true history of Scanderbeg, a name synonymous with that of Alexander the Bey or Lord, appears to be as follows:

George Castriot (such was his proper designation) was born at Croia, the capital of Albania, in the year 1405. His father, John Castriot, hereditary sovereign of the country, and Voisava, his mother, were celebrated by the historians of the age for their mental endowments and personal beauty. They had three other sons and five daughters. The untimely fate of George's elder brothers will be mentioned hereafter. Of his sisters little is known, except that they were married to Christian princes and noblemen suited to their rank.

After the conquest of Greece by the Romans, Albania, not then recognized by that name, became incorporated with some adjacent provinces in the government of the Prætorian Prefect of Illyricum. At the division of the empire it was allotted to the Eastern monarchs, and so remained till the decline of their power, when the government fell to the family of the Castriots, who were generally called kings of Epirus, as a country of more antiquity and fame; but Albania was certainly the most important part of their dominions, and Croia, its metropolis, the seat of their residence.

The overthrow of Bajazet by Tamerlane checked for a time the spreading empire of the Ottomans; but after the death of that victorious prince, Mahomet, the son of Bajazet, recovered his father's kingdom, which was vastly increased by the conquests of his own son and successor, Amurah II., both in Asia and Europe. Amurah was brave and ambitious, but fretful and impatient on the slightest cross, particularly in his old age. He was as prudent in politics as able in war; sincere in his religion, and, in general, an observer of his word; but his perfidious conduct to the Castriots supplies a memorable exception to the latter rule. He meant well, but he possessed absolute power. The bigot and the tyrant, under such a temptation, will sometimes get the better of the man. The consistent rectitude of Marcus Aurelius was not to be expected from an Eastern despot, without the light of letters or philosophy.

After extensive conquests in Caramania, Amurath, upon slight pretenses, carried his arms into Greece, and subdued Achaia, Thessaly, and Macedon. Athens yielded to his yoke, and Thessalonica, after a brave defence, endured the horrors

of an assault. John Castriot, King of Epirus and Albania, who saw with bitter anguish the supineness of the Greek Emperor, resolved to anticipate attack, and hastened to meet the approaching invader on the frontiers of Macedon. Amurath soon found the mountain warfare tedious, expensive, and interfering with his career of victory. He, therefore, listened readily to terms of accommodation, and consented to leave Castriot undisturbed possession of his crown and kingdom; conditions not to be refused by a comparatively weak opponent, and which the haughty Sultan would have peremptorily denied to the Cæsar of Constantinople. But Amurath insisted, as a *sine quâ non*, on the delivery of the four sons of Castriot as hostages. The feelings of the father, though deeply wounded, gave way to the imperative duty of the monarch. His subjects were his children, and exposed to inevitable ruin. Trusting to Amurath's reputation for keeping plighted faith, the afflicted parent yielded up his boys. Amurath received the royal pledges, and ending the war, carried them with him to Adrainople, his European capital. Four centuries later, a reverse of a similar compact between Christian and Infidel occurred in India, by the surrender of the sons of Tippoo to Lord Cornwallis. John Castriot appears to have remained on friendly terms with the Sultan for the remainder of his life, during which the captive princes were treated with the respect due to their rank and character.

George Castriot, though only eight years of age, was speedily distinguished and admired by the Sultan and the whole seraglio. His extraordinary beauty, manly deportment, vivacity, and genius, charmed all who came in contact with him. Amurath treated him as his own son; had him carefully instructed in the religion of Mahomet, and in such branches of science as were known in the Turkish Court. Hoping to extinguish in his young mind all memory of the Christian faith, he forced him to subscribe to the ceremonial rites of Islamism, and gave him the high-sounding name of Scanderbeg, or Lord Alexander. His rapid improvement in martial exercises induced the Sultan to take him to the wars in Anatolia, where he evinced such courage and ability, that at nineteen he obtained the command of five thousand horse and the title *Bassa* or *Pasha*. The Sultan's presence being required in Europe, he left his young general to conduct all the armies in Asia Minor, which he did with so much success that Amurath frequently called him his right eye, his right hand, his bulwark, and the extender of his dominions. Returning to Adrianople, full of fame and youthful ardor, Scanderbeg killed a gigantic Tartar, esteemed invincible, in single combat; and not long after, in Bithynia, encountered two Persian champions, who had publicly challanged any two men in the Sultan's army, and slew them both.

Scanderbeg loved glory, but his heart was more devoted to the truth. When in the field, he was constantly attended by some Christian officers and soldiers, countrymen of his own, by whom he was secretly instructed and confirmed in his original faith. To maintain this, and to secure the civil liberty of his native land, soon became the governing principle and guiding star of his active and valuable life. With this secret bias, which he dared not yet disclose, he abstained from utterly crushing the Hungarians, against whom he was dispatched with a numerous army; but such was his prudence that he lost no credit, and escaped all suspicion on the part of his cunning and mistrustful master.

Soon after the close of the Hungarian war, John Castriot died, upon which Amurath dispatched Sebalia, a Bassa of great military experience, with a powerful force, into Albania. He at once obtained possession of the kingdom. The people, surprised and without a leader, were told that he came as a friend, by the Sultan's order, to secure the throne for the hostage-prince, who would shortly arrive and assume his rights. In the meantime, Amurath caused the three elder brothers of Scanderbeg to be secretly destroyed by poison, and reduced this Christian kingdom to the miserable condition of a Turkish satrapy. The churches were turned into mosques, the laws subverted, and the property and persons of a brave, independent nation, placed at the mercy of a barbarous and foreign tyrant. The grief and indignation of Scanderbeg were excessive, but he knew he was in Amurath's power; he subdued his feelings, and resolved to "bide his time." The crafty Sultan, who really loved him, was unwilling to murder him

with his brothers, and vainly imagined, that by present honors, and promises for the future, he might reconcile him to the wrongs of his family and country. He was not, however, quite free from suspicion. Sometimes he would hint to Scanderbeg an intention of restoring him to his father's kingdom, merely to discover whether he encouraged any such hopes; but the Greek was too wily for the Turk, and preserved an impenetrable mystery.

When the Hungarian war broke out anew, Amurath distinctly evinced his doubts of Scanderbeg by placing the Bassa of Romania above him in command of the army. A great battle was fought near the river Moravia, in which the Christians, under the celebrated John Corvinus Hunniades, one of the first generals of the day, obtained a decisive victory. The Turks lost forty thousand men. At the commencement of this action, Scanderbeg, with the Epirots who were in his confidence, fled. This so astonished and discomfited the Turks, that the rout soon soon became universal. In the confusion Scanderbeg seized the Turkish Secretary, and compelled him, under threat of immediate death, to write an order, as from the Sultan, to the governor of Croia, to deliver up the city to him, Scanderbeg, now appointed governor. The wretched Secretary was then disposed of, to secure their own safety. The commandant of Croia fell into the snare, and resigned his post to Scanderbeg. But the garrison still remained. Small detachments of Scanderbeg's own faithful followers entered the city without suspicion, and in the dead of night, surprised the Turks, with the aid of the inhabitants, and put them to the sword, sparing only a few, who submitted, to save their lives, and embraced the Christian faith. Scanderbeg being in possession of the capital, all Epirus declared for him; and in a few days, not a Turk was left in the land, except in a few garrisons, which were soon reduced. Amurath, foaming with rage, was too much embarrassed with the Hungarian war, to think of wreaking vengeance on his revolted lieutenant. Thus, by a deeply planned and well-executed stratagem, the hero of Epirus liberated his country and revenged his brothers. If ever double dealing was justifiable, it was in this case. Let those who doubt, imagine themselves for a moment in the position of Scanderbeg, and say, would they have resisted the temptation of circumstances to escape from such a perfidious master as Amurath had proved himself? Let it be remembered, again, that Scanderbeg was a Greek, and that since the days of the Trojan war and the wooden horse, the Greeks were renowned for subtle contrivances; such schemes were in their blood and essence. *Naturam expellas furcâ tamen usque recurret.*

"Strive to expel strong nature, 'tis in vain,
With double force she will return again."

Scanderbeg found time to restore the civil government of his kingdom, and soon resolved to retort upon the Turks, which he effected by a predatory inroad into Macedon. Amurath, upon this, dispatched a chosen general, the Bassa Ali Bey, to invade Epirus with forty thousand men, and with orders to bring Scanderbeg before him, either alive or dead. The Epirots flocked round their prince, who treated the coming storm with indifference approaching to levity. They were even more astonished when he dismissed many who offered to serve him, and took only eight thousand horse and seven thousand foot, when he might have trebled the number. With this small army he took post in a narrow defile on the borders of Macedon, and about eighty miles from Croia, defended by mountains on one side, and a wood on the other. Here he awaited the onset of the Turkish army. On its approach, he ordered Amasie, his kinsman, with three thousand men, to lie hid in the wood till the battle should be fairly engaged, and then, as opportunity might offer, to attack the Turks in the rear. The onset of the enemy, furious as usual, was checked by the personal prowess of Scanderbeg, who slew many with his own hand; but pressed by numbers, he feigned a retreat, which drew Ali Bey into the defile, as he had expected, where, being assailed in front and rear, his men fell into confusion and panic, and trampled each other to death. The Bassa and his staff escaped with difficulty; but he left behind him twenty-two thousand slain, two thousand prisoners, and twenty-four standards, with all his matériel of war, tents, and baggage.

The tactics of Scanderbeg in this battle were exactly similar to those of Belisarius in his last campaign at Chettos, when the Bulgarians, under Zabergan, threatened Constantinople.

Scanderbeg, having mounted his seven thousand foot with horses taken from the Turks, entered the sultan's dominions, with the plunder of which he enriched his followers, and returned in triumph to Croia. The losses of Amurath so reduced his power, that he was compelled to sue to the Hungarians for a peace. This they granted, upon terms too advantageous to refuse, but they lost an opportunity that never returned. Had they continued the war in hearty alliance with Scanderbeg, the Turks would, in all probability, have been driven back into Asia, the miseries they subsequently brought upon the Christian world might have been prevented, and the annals of Europe written without many lamentable passages.

A peace was made, and solemnly sworn to by Wladislas, king of Hungary, on the Evangelists, and by Amurath on the Koran. But before long, Julian, the Pope's legate at the court of Hungary, being informed that the Turkish affairs had fallen into confusion under the government of Mahomet, the young sultan, to whom Amurath, his father, had in disgust resigned the crown, persuaded Wladislas to break the peace, and absolved him from his oath; or, in other words, gave him a dispensation for perjury. Scanderbeg, who was under no obligation to the contrary, resolved to assist the Hungarians, but was prevented from arriving in time by the interference of the despot of Servia. The battle of Verna was fought without his aid. Amurath, though old and weary with many toils, resumed the government on the approach of danger; and, passing over from Asia, joined his Bassa, and marched to encounter the enemy. The battle, long doubtful, terminated in a complete victory on the part of the Turks. The result looked like a judgment on the Christians for their breach of faith. Wladislas fell, with two-thirds of his army, and the flower of his nobility. Hunniades escaped with difficulty, and the papal legate, the promoter of the uncalled-for war, after being stripped, wounded, and reviled by the victims he had seduced, perished in the storm of his own raising.

Knolles, in his account of this battle, relates the following remarkable circumstance. Amurath, seeing his men, at a particular crisis, ready to give way, took the treaty from his bosom, and, holding it in his hand, with his eyes raised towards heaven, cried aloud, "Behold, thou crucified Christ, this is the league thy followers have, in thy name, made with me, and which, without cause, they have violated. Now, if thou art God, as they say thou art, revenge the wrong done to thy name and me; show thy power upon this perjured people, who worship thee with their mouths, but in their deeds deny thee!" Amurath, after this day, became more gloomy and discontented than ever, and, being asked the cause, answered that he desired no more victories at such a price. He thought, with Pyrrhus, that a repetition of such success, which cost him the fourth part of his army, would be total ruin.

Again he returned to Magnesia, but his thirst of revenge on Scanderbeg disturbed his repose. A second time, to the great mortification of his ambitious son, he resumed the direction of affairs. Cajolery was his first weapon. He sent Ayradin, an accomplished diplomatist, as his ambassador to Croia, armed with letters, overflowing alternately with menaces, reproaches, flattery, promises, and artful insinuations. He assured Scanderbeg that if he would return to his allegiance, and reëmbrace the Mahometan faith, his power and wealth should be trebled; but that utter extirpation would follow him and his if he refused. Scanderbeg dismissed the ambassador with an answer that became his own courage and the justice of his cause. The Sultan, when he read it, began to stroke his white beard, as was his wont when angry, and exclaimed, "Vain wretch! Thou desirest an honorable death. Take thy wish. I will attend the obsequies of my foster son. Yes; though unbidden, I will make one at the funeral pomp of the great prince of Epirus!"

To keep Scanderbeg employed, Amurath sent Ferises, with nine thousand horse, as an advanced column, while he himself prepared to follow with his whole force. The Prince of Epirus had dismissed his his army, raised for the Hungarian war, and had with him only his usual guards, one thousand five hundred foot and two thousand horse. Ferises attacked him suddenly, and, hoping to gain immortal credit and end the contest at once by the death of Scanderbeg, with more courage than prudence, sought for him, where he was ever to be found, in the front of the battle. Scanderbeg met and dispatched Ferises by a single blow with his sabre, in

the full sight of both armies; whereupon the Turks fled incontinently, but were so closely pursued by the Epirots, that few of them escaped to carry the news to Adrianople.

The Sultan, who imputed the failure of Ferises to his own rashness, replaced him by Mustapha, a more prudent commander, with instructions to ravage the country on all sides, but on no account to risk a battle, and to retire on the approach of Scanderbeg. Mustapha observed his orders to the letter. His devastations were equal to those of Massena and Loison in Portugal, in 1809–10,—worse they could not be. But Scanderbeg watched his opportunity, and, taking the Turks by surprise, in one of their predatory excursions, drove them to their trenches, entered with them, and stormed the camp. Mustapha escaped by the nearest road to Macedon; five thousand Turks fell on the spot, and many of the fugitives were afterwards either killed or made prisoners. Mustapha was beaten, but not destroyed. He returned to Epirus, and hazarded a battle with worse success than before. He now lost ten thousand men, with his own liberty, and that of twelve principal officers, whose ransom cost Amurath two thousand five hundred ducats, and presents of nearly the same value. These, with the plunder of the Turkish camp, and the contributions raised in Macedon, greatly enriched the Epirots. This last victory only cost Scanderbeg three hundred men.

Amurath having again defeated Hunniades in a battle of three days duration (a mediæval Leipsig,) on the plains of Cassova, resolved now to proceed against Scanderbeg in person, and consummate the vengeance he had so long threatened. For this final effort, he assembled an army at Adrianople of one hundred and sixty thousand men. Scanderbeg, who had early information of his movements, prepared for the coming storm. He ordered those who lived in the open country, in farms, and villages, to quit their habitations, and take with them every thing that was movable. The rest he destroyed, that the enemy, on their arrival, might find no resources in the assaulted country. This was precisely the plan adopted by the Duke of Wellington, when Massena invaded Portugal, in 1810; and by the Russians, when Napoleon marched on Moscow, in 1812. The women and children, and all such as infirmities and old age had rendered useless, were sent into fortified places in the most remote parts of the kingdom, or into the Venetian or some other neighboring Christian dominions, where they remained till the danger was over. It was a moving scene to see aged parents taking leave of their children, and affectionate wives of their husbands, almost despairing ever to see them again, so deadly were their apprehensions of the Sultan's power. War has many terrible phases, but none more heart-rending than such as these. The Epirots had long enjoyed under their fortunate king, liberty, safety, and prosperity. His wars had been numerous, but they were more advantageous to his people than peace itself. Many grieved for themselves, but there was patriotism in their hearts, and all trembled for their king and country.

Amidst the general alarm, Scanderbeg alone retained his self-possession. He labored for the safety of the public without partaking of their fear. He relied on his plans, and felt confident of the result. The fortifications of Croia were repaired and improved; all the burdensome inhabitants were removed to the sea coast; provisions were laid in for twelve months, one thousand three hundred men added to the garrison, and Uranaconites appointed governor,—a man every way equal to the important trust. Of all the Epirots capable of bearing arms, Scanderbeg selected only ten thousand, with which small, manageable army, he held the open field, and sent the rest to defend the cities and other unprotected places in his dominions.

Amurath, who, from age and physical infirmity, was obliged to travel slowly, sent on forty thousand horse in advance to besiege Setigrade, on the borders of Macedon, the second city in Epirus, whilst he himself followed with the bulk of his army. The Turks were no sooner encamped before this place than Scanderbeg, by a dashing surprise, cut off two thousand of them, to give them a foretaste of the entertainment they were to expect in Epirus. A few days after, Amurath arrived, and besieged the city with his whole force; but his success appeared to be very doubtful, and his attacks were invariably repulsed with heavy loss. At length, a villain poisoned the fountain that supplied the whole city with water, and obliged the garrison to surrender. Amu-

rath bountifully rewarded the traitor, according to promise, but had him privately made away with a short time after.

The Sultan now prepared for the siege of Croia, fully expecting that the reduction of the capital would be followed by the conquest of the whole kingdom. Croia was situated on an eminence in the plain of Tyranna, accessible only at two points, being every where else defended by impregnable rocks. The numerous hosts of Amurath completely invested the city, and covered the surrounding plains. Scanderbeg lay hidden in the mountains, watching the enemy with the eye of a lynx and the prepared spring of a tiger-cat. The Sultan carefully fortified his camp, and then summoned the place. The governor replied by a defiant refusal. Cannon then opened on the walls and a breach was effected. The assault was given and repulsed, with a loss to the Turks of eight thousand of their bravest Janissaries. During this, Scanderbeg descended from his mountain fastness, entered the trenches, fired the camp in several places, and with dreadful havoc and confusion drove all before him. Amurath and his generals began to despond. His son, Mahomet, alone, who gave early proofs of his savage disposition, drove back the unwilling soldiers to the breach, where they were helplessly slaughtered, and not a few received death from the hand of their cruel prince, for flying to avoid it.

Scanderbeg, who never slept above two hours at a time during the siege, and always armed, with his horse and weapons beside him, gave the Turks no rest by night nor day; but assaulting them, sometimes in one place and sometimes in another, kept them in continual alarm.

Mahomet, burning with rage, left the trenches with a chosen and numerous body of troops, resolving to force the mountains and engage his enemy there. Scanderbeg, whose intelligence never failed, being informed of this, left five hundred men under an able officer to guard the passage, which they did so effectually, that Mahomet was completely foiled. Scanderbeg, in the meanwhile, marched round to the opposite side of the Turkish camp, where he was least expected, and forcing the trenches, made such a slaughter of the enemy, that their former losses seemed as nothing in comparison. Mahomet, who had no reason to boast of his trip to the hills, hearing this, returned to oppose Scanderbeg, and save the rest of the camp, being closely pursued by the five hundred Epirots to the very entrance of the trenches. Scanderbeg then retired, having defeated Mahomet's designs, destroyed a vast number of the Turks, and plundered their camp, without the loss of a man on his own side. His name alone, which the Epirots made use of in their attacks to terrify their opponents, as French nurses silenced squalling children by calling out "*Malbrook*," was even sufficient to strike a general panic, and to throw the whole Ottoman army into confusion. Instead of continuing to batter the city, they turned their cannon round on the lines that encompassed their camp to defend themselves. To add to their difficulties, provisions began to fail them. Amurath obtained, by means of profuse payment, supplies from Desia, a city of the Venetians; but Scanderbeg intercepted their convoy, and carried it in triumph to his own camp. Amurath next attempted to undermine the rock upon which Croia was founded, but the effort proved futile. He then tried to corrupt the Governor, and to raise a mutiny in the city by lavish bribes; but being disappointed, finally offered peace, on condition of receiving only a small yearly tribute, to save his honor. Scanderbeg resolutely refused. Then the Sultan gave way to despair, tore his white beard, and cursed his destiny, that had reserved for his old age this shameful discomfiture. He boasted of his former glory, counted over the battles he had fought, the victories he had won, and aggravated his present miseries by the memory of his past triumphs. Finding his end approach, he summoned his son and chief officers, to whom he complained bitterly, and with many tears, of his hard fortune, in being compelled to die thus in an obscure country, and in the sight of his enemies. He conjured Mahomet to revenge his death, became speechless, struggled for some time in extreme agony, and so expired. The siege of Croia, which had lasted for six months, was raised at once. Mahomet, with his dejected army, took the shortest road out of Epirus; but Scanderbeg hung on their rear, and reduced them to a grievous plight before they entered their new master's dominions. Then the Epirots, with swelling hearts, poured forth thanksgiving to the bestower of victory, sang their king's

praises with loud hosannas, and exchanged mutual congratulations, more easily conceived than described.

Scanderbeg now, for the first time, found leisure to think of domestic enjoyments. To the great delight of his subjects, he married the daughter of Aranthes Conino, Prince of Durazzo, a beautiful and accomplished lady. Then, with his queen, he visited every part of his kingdom, to comfort and gladden the hearts of his people, who hailed him with enthusiasm almost approaching to idolatry. In their progress, as at all other times, he administered justice with mercy. Dr. Johnson has said of England under her great Saxon monarch:

"A single jail, in Alfred's golden reign,
Could half the nation's criminals contain;
Fair justice then, without restraint ador'd,
Held high the steady scale, but sheath'd the sword.

So it might have been said of Epirus under the paternal rule of Scanderbeg. Except when foreign enemies vexed the country, persons loaded with gold might have traveled from one end to the other without being molested. Try the mountains of Albania now without an escort, and the difference will be painfully apparent. So far was this great sovereign from levying oppressive taxes or imposts on his subjects, that it became a proverb amongst the neighboring princes, that "the Turk's dominions are Scanderbeg's revenues."

Mahomet the Second, who succeeded his father, sometimes called the Great, (so is Herod,) was a very victorious, but a very impious prince. His mother, the daughter of the despot of Servia, was a Christian, which made some think he would favor her religion; but he professed Mahometanism, and in his heart cotemned both. Ambition was his god, and he indicated his faith by his practice. He overthrew the two empires of Constantinople and Trebizond, twelve kingdoms, and five hundred cities. But this mighty conqueror, during the life of Scanderbeg, could never subdue Epirus, nor any portion of it. He was even unable to retain Setigrade, which was rescued from the Turks soon after the death of Amurath. And yet his efforts and his power were continually directed to the destruction of Scanderbeg. He made war on him without ceasing. He tried flattery as well as force; invited him to his court under pretense of love and personal admiration, and a desire to renew their former acquaintance. He twice invaded Epirus at the head of twenty thousand men, and both times sustained ignominious defeats. He even descended to the meanness of hiring traitors to assassinate the man he could not subdue; and to the eternal infamy of their employer, these miscreants were discovered and justly punished.

If any thing can be more wonderful than the actions of Scanderbeg, it is that he should be preserved amidst the endless dangers to which his own courage and the machinations of his enemies exposed him, to die peacefully in his bed. The fee-simple of his life for forty years was scarcely worth a minute's purchase, as a commercial speculation. Being with his wife and son at Lyssa, he was attacked by a violent fever, and apprehending it to be mortal, he recommended to the princess, his confidants, and the Venetian ambassador, unanimity, and the care of his son, who was then in his minority; and to whom he gave much excellent advice. Above all things, he charged him so to rule as to be loved rather than feared by his subjects, whose fidelity to himself he praised, and for whom he expressed the greatest affection.

While Scanderbeg was thus setting his house in order, and preparing for death with the piety of a Christian, and the resolution of a hero, news was brought that the Turks had invaded the dominions of Venice. Upon which, dying as he was, he rose, and called for his horse and his armor; but the strength of his body not answering the vigor of his mind, he fainted, and was, by his weeping attendants carried again to his bed. Recovering his speech, he bade his officers hasten to the assistance of his allies, and tell the Turks, "he was detained for the present at Lyssa, but that he would be with them tomorrow." These words, spoken in his weakness, before he recovered the perfect use of his reason, being reported by his officers, reached the Turkish camp that evening, and spread such terror, that expecting every moment to be attacked, the whole army remained all night under arms, and at the approach of day fled to the mountains of Scutari, as if Scanderbeg had been indeed at their heels, where the greater part of them perished miserably from want of food.

While the Turks were flying, and none pursued, Scanderbeg died. This irreparable loss to his kingdom and Christian confederates occurred on the seventeenth of January, 1467, in the sixty-third year of his age. He was interred with much magnificence in the cathedral church of St. Nicholas at Lyssa. Nine years after the city was taken by the Turks, who though they hated and feared him living, with much reverence took up his bones, and divided them in small pieces. After each had set his portion in silver or gold, and adorned these relics with jewels according to their fancy or ability, they wore them as amulets, or sacred charms, against cowardice or ill-fortune.

Scanderbeg had a fair complexion, regular features, and a majestic countenance. His face was perfectly handsome, without softness or effeminacy, as was sometimes remarked of the beauty of Edward IV. His stature was lofty, he was proportionably large and exquisitely well made. His constitution, naturally good, was so hardened by temperance and exercise, that he could bear extreme vicissitudes of heat and cold without inconvenience. His strength was wonderful. Of this several authors have recorded surprising instances; such as his cutting two men asunder with a single stroke of his cimiter, his cleaving another at one blow from head to chine, his piercing through head-pieces of iron, his dispatching a wild boar at one thrust, and decapitating a wild and fierce buffalo at another. Mahomet II. hearing of these and other achievements, desired to see Scanderbeg's sword, imagining there must be something very extraordinary in it; but finding it like others, complained that the Prince of Epirus had deceived him in sending him word that "he was ready at any time to convince him of the superiority of his weapon, but then it must be in his own hand, which he could not yet spare from the defence of himself and his country."

Scanderbeg's mind was so pure, his genius and virtue so visible, not only in the general course, but in almost every minute action of his life, that it is merely repetition to say he was pious, wise, liberal, just, and clement, courteous, not soon offended, and easily appeased. A striking instance of his forgiving temper is contained in the following fact. His kinsman, Amasie, who had betrayed his counsels, and joined the public enemy, returned after some time, with a halter round his neck, and threw himself at his feet. Scanderbeg not only raised him from the ground, and embraced him affectionately, but restored him to his former command and confidence. That his judgment was mature in youth, without practical experience, we gather from his conduct under Amurath, and his skillful recovery of his native dominions. And that time did not abate the ardor of his courage, we have unanswerable proofs from his demeanor in his last moments.

It is asserted by the evidence of many who served under him, that in his various wars three thousand Turks fell by his own hand; and it is certain, that his troops were never defeated in any battle where he commanded in person. His word to his soldiers was not *go on*, but *follow me*. In battle, his physical exertions were so great, that blood sometimes was seen to ooze from his mouth and other parts of his face. He was never known to retreat from a single adversary but once, and that in the following manner: Giving some orders to his army, a private soldier, with more petulance than premeditated insubordination, contradicted him. Scanderbeg drew his sabre to cut him down; upon which the mutineer clapped spurs to his horse, and rode away at full speed, and the king after him, till they came to the brink of a river. Then the soldier turned round, and drawing in his reins, told Scanderbeg "he was deeply grieved to oppose his prince, but nature bade him defend his life." This respectful but resolute demeanor, so charmed Scanderbeg, that he sheathed his own sword, and told the soldier, "he had much rather have such a man for his friend than enemy."

This model for sovereigns was neither rendered vain by good fortune, nor dispirited by adversity. He had no personal ambition, no avarice, no luxurious appetites. His passions and propensities were held in systematic control. He fought not for power, but for liberty. He spoiled his enemies to humble them, and to procure subsistence for his own people, not to enrich himself. When circumstances permitted he kept a sumptuous table for his officers and friends; but on all occasions he himself ate but once a day, and that sparingly. He never slept more than five hours in the twenty-four, and when in the field would satisfy himself with two. His soldiers were richly habited,

but their king generally very plain in attire. His horses and arms, however, were of the first quality; and on occasions of ceremony he would appear dressed and attended with the utmost magnificence. In fine, as a king, a soldier, and a Christian man, living in an age and country when the hand alone could keep the head, his character commands equal admiration and esteem, and approaches as nearly to perfection as the weakness of humanity allows us to suppose possible.

From the British Review.

ON THE ORIGIN OF LIFE.*

From the monad to man, the transition is easy and natural, according to the summary developmental hypotheses so popular in the present day; but "Whence comes the monad?" is a question liable to prove a stumbling-block to the theorists. Given your elementary organic atoms or globules—and what is more easy than to to "select" and sort these, until you get the biggest and strongest—from which to make mollusca? Having got thus far, you need only by degrees introduce vertebræ, and sundry organs and appendages, varying strictly according to the habits and requirements of the creature, and you naturally and inevitably arrive at the higher animals, and *lastly* (so far as we are *yet* taught) at man himself. The process, although long, is simple in the extreme, judging from the recent revelations; and has this great merit, that it requires no officious interference of a First Cause; all these wonderful results being due to the unalterable operations of the "laws of nature." These *laws* being manifestly sufficient, how unscientific it is to ask for, or introduce, a Creator! *Nec Deus intersit;* and so complete and self sustained is the whole system, (to believe its expounders,) that he would almost appear unnecessarily captious who, albeit quite unconvinced by the arguments, should yet for once concede the whole theory of development by law from one primary organic atom, and merely ask who gave the law, and who made this wonderful atom, with its receptivity, its varied adaptability, and its unlimited capacity for development? Yet, until these questions are satisfactorily answered, no "natural selection," no "struggle for existence," will enable us to exclude the Creator from His works.

It is evident that a question of this urgency, whether considered as bearing upon abstract science or upon natural theology, cannot be allowed by the developmentarians to rest there. The monad, the primary organic germ, must be accounted for; and it must be shown to be evolved from brute inorganic matter by the operation of natural laws, which laws are positive and invariable, or his carefully constructed pantheistic system will tumble to pieces, like a child's tower of cards, when the foundation is touched. Hence have arisen the various attempts that have been from time to time made, to show that an organic cell might originate from the ordinary juxtaposition of its elements, in the same manner as a crystal is formed; and under the influence of forces, only differing from those that preside over the latter process, chemical attraction, galvanism, etc., in complexity of operation, but not at all in nature; and that the lowest forms of animal and vegetable life were nothing more than

* *Hétérogénie: ou, Traité de la Génération Spontanée.* Par F. A. Pouchet, Correspondant de l'Institut, etc., etc. Paris. 1859.

Spontaneous Generation: From the "Cyclopædia of Anatomy and Physiology." By Allen Thomson, M.D.

Organisation, Systematische und Geographische Verhältnisse der Infusionsthierchen. By M. Ehrenberg. Berlin. 1836.

primary organic cells. The first work, the title of which is placed at the head of this paper, is by far the most complete and scientific exposition of this opinion that has yet appeared. The author is a savant of great eminence, and if we may trust the accuracy of his investigations, he appears to have pushed his analysis of phenomena to the uttermost, and also to have proved his case. It is true that the position with which he sets out does not involve all the consequences above men tioned. He does not formally state that organic matter and life can be directly produced from inorganic matter; on the contrary, he distinctly avers, that although living beings may and do constantly appear in certain places, without the pre-existence of any germ or any similar organism—as a new creation, in fact, under definite natural laws—yet organic matter in some form is presupposed or postulated. But in the course of the argument, as we shall see, facts are adduced which show that this is by no means necessary; and so we are compelled to conclude either that the theory is more comprehensive than its first formal enunciation, or that it is overproved, and its postulates utterly nugatory.* But facts first, and their consequences afterwards.

Wherever in nature, air, earth and water meet, there is a development of life; wherever nutriment is to be got, there is or will be in very brief space of time, abundance of creatures to be nourished thereby; there is nothing so intrusive as life. Countless myriads of minute creatures, for the most part far too small to be detected without powerful microscopes, are observed to swarm in every locality where, whether by nature or artificial means, the appropriate pabulum for their sustenance is provided, and fit conditions for their development afforded. If we examine a drop of water from a stagnant pool, by the aid of the microscope, we find it teeming with forms of life, all wonderful, many strikingly beautiful, and abounding with interest as to their habits and general phenomena. In like manner, a drop of water in which any animal or vegetable matter has been infused, or has decayed, is found to be similarly tenanted; and these may be produced at will; hence they have been called infusoria. As to the almost infinitely small size of the simplest of these first-born of Fauna, and their countless multitudes, we may accumulate figure upon figure, without the mind being thereby enabled to form any adequate conception of either. Professor Owen calculates that of the *Monas Crepusculus* (Ehr.) one drop of water may contain five hundred millions of individuals. We may say that in some localities there are miles of strata, each cubic inch of which contains the remains of forty-one thousand millions of individuals of the *Gaillonella Distans;* but the mind grasps nothing of such sums as these; they are simply incomprehensible.

Minute as are these creatures, it may be questioned whether we have as yet more than a very dim and dawning appreciation of their aggregate importance in the economy of nature. Their distribution and diffusion, both in time and in space, speak loudly of a vast and perpetual purpose and function to be fulfilled, of whatever nature these may be. From pole to pole, and around the entire circumference of the globe, they are found in numberless swarms; and every geological record tells that there has never been a period in the history of our planet since life appeared, when these organisms were not present. Probably in this form it was that organic life first appeared; and whilst the larger tribes of animals have many times been swept away, it can not be without interest to remark that amongst the Infusoria which now exist, many "had their specific or their generic types at the very dawn of organization."* The wonders of their works, and the incalculable vastness of their catacombs, may be found related in all modern geological works. As to their general functions, let us hear Professor Owen:

"And now you may be disposed to ask:—To what end is this discourse on the anatomy of beings too minute for ordinary vision, and of whose very existence we should be ignorant, unless it were revealed to us by a powerful microscope? What part in nature can such apparently insignificant animalcules play, that can in any way interest us in their organization, or repay us for the pains of acquiring a knowledge of it? I shall endeavor briefly to answer these questions.

"The Polygastric Infusoria, notwithstanding their minuteness, take a great share in import-

* We allude to such facts as related to proto-organisms being developed in distilled water, to which no air has had access, and many others to be more particularly mentioned afterwards.

* Pritchard's *Infusorial Animalcules*, p. 63.

ant offices of the economy of nature, on which our own well-being more or less immediately depends.

"Consider their incredible numbers, their universal distribution, their insatiable voracity; and that it is the particles of decaying vegetable and animal bodies which they are appointed to devour and assimilate. Surely we must in some degree be indebted to those ever-active invisible scavengers for the salubrity of our atmosphere. Nor is this all; they perform a still more important office, in preventing the gradual diminution of the present amount of organized matter upon the earth. For when this matter is dissolved or suspended in water, in that state of comminution and decay which immediately precedes its final decomposition into the elementary gases, and its consequent return from the organic to the inorganic world, these wakeful members of nature's invisible police are every where ready to arrest the fugitive organized particles, and turn them back into the ascending stream of animal life. Having converted the dead and decomposing particles into their own living tissues, they themselves become the food of larger Infusoria, as the Rotifera, and of numerous other small animals, which in their turn are devoured by larger animals, as fishes; and thus a pabulum, fit for the nourishment of the highest organized beings, is brought back by a short route, from the extremity of the realms of organic matter." *

But it is not with the universal history of these creatures that we are now concerned, interesting as this is from their minute individual, but mighty aggregate power; but with their original production and re-production. Here has to be fought the great physiological battle of life—here has to be decided the question, Are the protozoa the first feeble tentative efforts of brute matter to form life; or, are they the marks of a creative hand, of a First Cause, as opposed to the ordinary operations of secondary causation? And here, if ever the mystery can be demonstratively solved,† must it be ascertained whether life is a great and special gift, or merely a somewhat complex arrangement of forces, chemical, galvanic, and other.

Whilst the ordinary mode of re-production involves a regular affiliation from parent to offspring, some circumstances connected with the production of these protozoa have induced many physiologists to believe that they were exempt from this necessity, and that they were developed almost in the same manner as minerals, from the aggregation of their component particles, independently of the previous existence of any similar body; with this only difference, that in this case the particles are organic; some going so far as to assert that the organic matter itself was formed by the action of the same chemical laws as an inorganic crystal. In support of this view, it is alleged that proto-organisms appear in immense multitudes wherever food is provided for them, even when the greatest care is taken to destroy and exclude every possible germ or egg. Their rapid appearance, and that where it would appear almost impossible that ova or germs should penetrate, and certain phenomena connected with the entozoa, certainly afford some ground for suspicion that organic matter in a dissolved or minutely divided state may assume forms of life different from that which it originally represented; hence the term "Hétérogénie." The counter-allegations are, that in all cases a living being pre-supposes a parent like itself; that organic matter is invariably due to the pre-existence of an organism; that once disintegrated, it is incapable of life again, except through the instrumentality of another organism; that all the phenomena connected with the development of infusoria, mould, fungi, and entozoa, are explicable on the hypothesis of pre-existing germs; which germs or ova are known to exist sometimes in countless myriads in the atmosphere; and, finally, that wherever experiments have appeared to prove the spontaneous production of organisms or organic matter, it has depended upon the imperfection of the means used to destroy and exclude these germs.

The history of opinion on this point is not without interest. Spontaneous generation of animal and vegetable life was almost a dogma for the ancients. *Corruptio unius est generatio alterius* was almost considered a fundamental truth.* All those animals whose generation was not apparent, were popularly supposed to be formed from the elements of the bodies amid which they appeared, by heat, air, and moisture. Some attributed to the earth the formation of serpents,

* Prof. Owen's *Lectures on the Invertebrata*, p. 27.

† If it be ever permitted to man to penetrate the mystery which enshrouds the origin of organic force in the wide-spread mud-beds of fresh and salt waters, it will be most probably by experiment and observation on the atoms which manifest the simplest conditions of life.—Owen's *Palæontology*, p. 17.

* Pouchet, *Hétérogénie*, p. 11.

rats, and moles; to marshes that of frogs, eels, etc,; whilst almost all agreed in considering that the innumerable legions of insects which prey upon decaying animal and vegetable matters, were formed by the process of putrefaction itself; and this belief was held by most writers up to the sixteenth century.* Aristotle thought that in the beginning all things were created by the Divine will, but that some animals sprung up spontaneously, nevertheless. According to this philosopher, "every dry substance which becomes moist, and every moist substance which becomes dry, produces animals, provided it be capable of nourishing them."†

The ancient poets probably expressed as much the vague convictions of the age as their own belief, when they treated of the earth and seas bringing forth life spontaneously. Lucretius thus alludes to the subject:—

"Nonne vides quæcumque morâ, fluidoque liquore
Corpora tabuerint, in parva animalia verti?"‡

And Virgil,—

"Cætera diversis tellus animalia formis
Sponte sau peperit . . . .§

In short, none of the ancient or mediæval writers appear to have entertained any doubt on the matter; but we know now how unfounded were most of their speculations on science.

The discovery of the microscope marked an important epoch as regards this doctrine. The first observers, astonished by the legions of animated atoms that appeared to them like a new world, and seeing in them only moving points of jelly, could only account for it by supposing that the very elements of matter had become animated, and so they became warm supporters of the theory of spontaneous generation. By degrees, however, as the instruments employed became more and more perfect, complicated structure and advanced organization seemed loudly to appeal against this primitive view; and from this time it has been to the microscope that both parties have applied for proofs and refutations of the adverse doctrines.

* Pouchet, *Hitérogénie*, p. 11.
† *History of Animals.* ‡ *De Rerum Natura.*
§ *Metamorphoses.*

An Italian writer and experimentalist, Redi, may lay claim to having been the first to institute a serious practical opposition to the views in question. He first showed that those insects which had hitherto been believed to be generated spontaneously in or upon putrefying flesh, were produced in a manner in no wise different from other creatures. Having covered the meat with gauze, he found that no maggots appeared on the surface, but that their parents, the flies, hovered perpetually around, and deposited their eggs on the surface of the gauze, at those points nearest to the meat. An experiment simple enough, yet one well worthy of notice, as it for the time reversed the notions of almost the entire scientific world. It shows, also, how completely experimental philosophy was in its infancy, and how its place was supplied by conjecture and dialecticism. Since the days of Redi numberless investigations have been made, and rewarded by the discovery of the regular laws which govern apparently (till then) lawless or exceptional phenomena; and although many instances of development are still obscure and uncomprehended, yet we almost daily receive so many proofs of the possibility of natural propagation in unexpected and almost incredible ways, that we can no longer feel justified in concluding that any given organism has had no parent, simply from the fact that none is evident at the first view.

The compound microscope of the eighteenth century increased greatly the facilities for these investigations; and it was during this epoch that Spallanzani dealt such fatal blows to the hypothesis of heterogenesis. Nothing daunted, however, the supporters of the theory adduced ever-fresh arguments and proofs; and we by-and-by find O. F. Müller, without doubt the first microscopist of his age, giving in his adhesion, and stating that the infusoria are unquestionably produced by spontaneous generation, and also "*ex moleculis brutis, et quoad sensum nostrum inorganicis.*" He conceived that "animals and vegetables decompose into organic particles endowed with a certain degree of vitality, and constituting animalculæ of a simple kind, which are susceptible of development by the addition of other particles, or of themselves aiding the development of some other animal, to become again free afterwards, and recommence this endless cycle of transmutations;" a

theory not very dissimilar to that which we shall find to be held by M. Pouchet.

Lamarck, Cuvier, Cabanis, and Bory St. Vincent appear all, more or less, to have been supporters of spontaneous generation; Oken also, whose views we shall notice in his own words, as indicating the results and tendencies of these development theories:

"884.* Galvanism is the principle of life. There is no other vital force than the galvanic polarity.

"885. Organism is galvanism residing in a thoroughly homogeneous mass. . . . A galvanic pile, pounded into atoms, must become alive. In this manner nature brings forth organic bodies."

"897. The fundamental matter of the organic world is the carbon.

"898. Now, carbon mixed identically with water and air is *mucus*."

"900. Every organic has issued out of mucus, is naught but mucus under different forms.

"901. The primary mucus out of which every thing organic has been created is the sea-mucus.

"902. Mucus belongs originally and essentially to the sea, and has not been mixed with the latter through the dissolution in it of putrefying substances."

"904. The sea-mucus was originally generated through the influence of light.

"905. Light shines upon the water, and it is salted. Light shines upon the salted sea, and it lives.

"906. All life is from the sea, none from the continent."

"912. The first organic forms, whether plants or animals, emerged from the shallow parts of the sea.

"913. Man also is a child of the warm and shallow parts of the sea, in the neighborhood of the land."

"936. Every where, where the three elements (air, earth, and water) coöperate, are infusoria present."

"939. Plants and animals can only be metamorphoses of infusoria.

"940. Every plant, every animal is converted by maceration into a mucus mass; this putrefies, and the moisture is stocked with infusoria.

"941. Putrefaction is nothing else than a division of organisms into infusoria, a reduction of the higher to the primary life."

Perhaps some of our readers may be surprised to learn that these are not the ravings of a distempered brain, but the lucubrations of one of the most profoundly learned leaders of the modern German transcendental school of philosophy. We quote the passages, as affording a fair exposition of what creation would be on the theory of the developmentarians and heterogenists; and also as giving a reason why such theories should be opposed at every step. It might appear to be a matter of no moment whether an infinitely minute animalcule came into being by the casual juxtaposition of its elements, or otherwise; but when the consequences of so apparently trifling an admission are investigated, they are serious enough to warrant us in well examining every fact that can bear upon it.

To return:—no more serious blow was ever struck at this doctrine of spontaneous gemmation than by Ehrenberg, who discovered the true mode of propagation of the infusoria by *ova* proper, by buds or gemmation, and by spontaneous fission. He discovered also the real germs of fungi and mould, and proved that from these new mould and fungi could be raised; rendering it probable that all that unexpectedly appeared were due to germs afloat in the atmosphere. For it was shown that thousands of millions of these germs may float about, and even when closely aggregated, look only like a puff of thin smoke, so minute are they. The ova of the infusoria and rotifera also may dry by countless millions, and be floated about amongst the fine dust from the bed of dried-up ponds or pools; and considering their inconceivable numbers, it is difficult to suppose that the atmosphere can ever be free from them. But, notwithstanding all this, there are still physiologists of great eminence—amongst others our countryman Dr. Allen Thomson—who believe that, although the ordinary mode of propagation and origin of the infusoria is by ova, yet that they, as well as some of the Entozoa, occasionally appear by spontaneous generation.

By way of more systematically examining this doctrine, we propose to give an abstract of M. Pouchet's views, arguments, and experiments, as concisely as the nature of the subject will admit, and afterwards test the credibility of the testimony. In the outset, he announces that his doctrine has no analogy with that of the atomistic philosophers of antiquity; for, whilst they supposed that the entire animal was the result of the fortuitous concourse of atoms, he believes that the plastic force only produces ovules, which

* The figures refer to the sections as numbered in the translation of Oken's *Physio-philosophy*, published by the Ray Society.

afterwards undergo all the stages of development observed in normal generation. He then proceeds:

"Heterogenesis is only manifested *ordinarily* when three elements meet—air, water, and a decomposing or decomposable substance. Heat, light, and electricity have an influence over this remarkable phenomenon. The decomposing substance plays the most important part in the production of spontaneous organisms; it may, however, though rarely, be wanting. Air is indispensable for the production of heterogenesis; if the quantity is too small, no organism appears, or they are of the most elementary order, and soon die. Oxygen has, however, been substituted with success for atmospheric air.

Water is the most indispensable agent in the process; if it be wanting, there is no production of life.

The same substances, exposed to diverse influences, produce animals and plants absolutely different. Substances absolutely analogous often produce different organisms, although placed in identical conditions. Thus, pieces of human crania, of different historic epochs, have produced animalcules and plants quite different.

The existence of spontaneous generation is demonstrated by proving in succession that no one of the three elements contains, or can contain, organic germs.

"The solid body is so little likely to be the vehicle of germs (or ova,) that it may be heated to a high temperature, or even carbonized, without the production of organisms being thereby prevented. Water is not the medium whereby the germs are introduced, since our experiments have shown that various plants and animals have been produced in artificial water, and other experimenters have proved the same fact. Neither can atmospheric air be considered as containing these germs, for in our experiments we have seen organisms produced in other gases."

Since, then, by way of exclusion, it appears that these germs or ova reside neither in the air, the water, or the solid body, in follows that the organisms appear spontaneously under the simultaneous influence of all the three. We pause here for a moment in our abstract to notice, that our author appears, singularly enough, to have overlooked what is, at all events, a logical possibility—namely, that there may be germs in all three elements; and that whilst his efforts are in each individual case directed to the proof of their non-existence in one, those in the other two may perhaps be developed. Thus, supposing him to have carbonized A, there may have been germs in B and C, which are not destroyed nor excluded. Supposing him to have boiled, distilled, or artificially formed B, still A and C are to be accounted for; and so on for all the possible combinations. There is no one of his experiments that would answer this allegation fully, even supposing them all to be as practically accurate as they profess to be theoretically complete.

The air (continues M. Pouchet) has been the last refuge of the panspermists.* Not being able rationally to confide the part of disseminator-general to the water or the solid body, the atmosphere, which will better bend to the caprices of the imagination, has been considered by them as the universal receptacle of the germs. Reason and experience alike overturn this supposition.

"If the air contained all the spores and eggs indispensable to explain the organisms which we see incessantly appearing every where and in every thing, it would be absolutely and uselessly encumbered thereby. By direct experiment we have also proved that such germs only exist in the air accidentally, and in insignificant quantity."

We would again point out a palpable error here. Considering the amazing numbers of spores or cells at least which are known to be continually entering the atmosphere in the form of impalpable dust, as from some of the fungi, it is evident that, if some considerable number of organic germs be not found, the means of investigation are insufficient. It is, however, further stated that the amount of organisms produced is by no means in any proportion to the volume of air which is in contact with, or is forced through the liquid; and that artificial air, or even oxygen gas, will suffice to produce animalcules.

So far M. Pouchet considers it proved how these beings are *not* formed. We will for the present defer his account of their positive production, as observed by

* In abstract only

* Those who believe in a universal distribution of germs or ova throughout the atmosphere, only waiting to meet with a proper medium for development.

himself and others, to examine the validity of the argument so far as it has gone.

The question stands thus:—Suppose it to be an animal or a vegetable infusion that is exposed to the atmosphere; in a few hours, or perhaps days, the liquid is found to be swarming with life; at first with forms of an extremely minute and elementary order, as the Monads; but afterwards with creatures of larger size and and comparatively complex organization. *Whence do they come?* M. Pouchet and the heterogenists say that they are formed directly from the disintegrated organic matter; and that, when the first generations die, their corpses form a sort of ovarian stroma, in which are formed ova, which are developed into animalculæ of higher type; a true "development" theory, which is more extensively applied in the sequel. The majority of physiologists of eminence answer the question in a manner more in accordance with the known and recognized order of nature. They say that myriads of organic germs are every where diffused throughout the atmosphere in a desiccated state ready for development, wherever the appropriate medium is found;* that these fall into the fluid, are expanded, and vivified, and fed, and produce animalculæ, which multiply so rapidly by various processes, that from one or two germs countless multitudes may appear in a few days.

The point of contest is evidently the existence of these germs and their sufficiency to account for all the phenomena, both which are denied by M. Pouchet. He has examined microscopically the air, and accumulations of ancient dust, which he considers to be the natural analysis of the solid parts of the atmosphere, and he has only very rarely found ova amongst it, by no means sufficient to account for the great numbers of organisms which are met with in all macerations; for he totally discredits the rapid multiplication by spontaneous fission mentioned by authors. He, therefore, ingeniously calculates that were the atmosphere the source of the germs, each cubic millimeter (*i. e.*, about one twenty-fifth of an inch) must contain six billion two hundred and fifty million ova; and then, he adds, the air in which we live would have almost the density of iron. Upon one point all observers are agreed, and as it is almost the only point of the kind, it is satisfactory to notice it, that when air is strictly excluded, no life appears. A film of oil spread over the fluid completely prevents the development of any organism. But this proves nothing, except that air is necessary, not only for the preservation, but for the development of life in any form; its absence also prevents that putrefactive or catalytic action which is essential as an initial measure.

After this we have argument and counter-argument, the weight of which must be altogether estimated by the authority of the investigator. M. Schultze performed a series of experiments which have long been thought to set the question of spontaneous generation at rest, and to prove that where due precautions were adopted to destroy any preëxisting ova in the materials used, and to prevent the access of any germs by means of the air supplied, no organisms were ever produced. He filled a flask half full of distilled water, in which he mixed various animal and vegetable substances. The whole apparatus was then boiled for some time, so as completely to destroy any remains of actual life, and a contrivance was adapted to the neck, by means of which air could be supplied to the infusion freely, the air having previously passed through concentrated sulphuric acid. This whole apparatus was exposed to summer light and heat, and the air renewed several times a day, from the 28th of May to the beginning of August, without any evidence of life appearing, although observations were constantly made on the edge of the liquid. And when, finally, the different parts of the apparatus were separated, there was not to be found in the whole liquid the slightest trace of in-

* Of this dormant vitality we have innumerable instances on a large scale; we can but quote one or two. "There is a lycopodium inhabiting Peru, which, when dried up for want of moisture, folds its leaves and contracts into a ball, and in this state, apparently quite devoid of animation, it is blown hither and thither along the ground by the wind. As soon, however, as it reaches a moist situation, it sends down its roots into the soil, and unfolds to the atmosphere its leaves, which, from a dingy brown, speedily change to the bright green of active vegetation. The *Anastatica* (Rose of Jericho) is the subject of similar transformations; contracting into a ball when dried up by the burning sun and parching air; being detached by the wind from the spot where its slender roots had fixed it, and rolled over the plain to indefinite distances; and then, when exposed to moisture, unfolding its leaves, and opening its rose-like flower, as if roused from sleep."—Carpenter's *General and Comparative Physiology*, 3d edit. p. 41.

fusoria, of confervæ, or of mould. But all three presented themselves in great abundance a few days after the flask was left open. A vessel containing the same boiled infusion, left open to the air by the side of the former, was found on the following day to contain vibriones and monads, to which were soon added some larger polygastric infusoria, and afterwards rotifera. M. Schwann varied this experiment by supplying to the infusion only air that had passed through tubes heated to redness, with the same negative result.

M. Pouchet has a double answer to these apparently conclusive researches; he denies the facts, and discredits their significance if true. He denies the facts, stating that he has repeated both experiments with fourfold precautions against error, and in no instance has failed to perceive the formation of animalculæ. He also states that, if these oft-quoted experiments of MM. Schultz and Schwann prove any thing, it is only that air that has been calcined or has passed through concentrated sulphuric acid is not adapted to produce that fermentative or catalytic action and decomposition without which no formation of life can be initiated. His proceedings, as described, certainly appear theoretically to be very near perfection, and to promise unimpeachable accuracy of result, but the possible sources of error are innumerable. "Although (says Müller*) some experimenters should have employed organic substances, long boiled, with distilled water and artificially prepared air at the same time, still the accuracy necessary for a sure result is neither probable nor generally possible, since every instrument used for changing the water ought to be absolutely free from particles of organic matter, and every cleansing is a source of errors. Even the use of perfectly pure distilled water can scarcely be presupposed, for water distilled five times may still contain organic particles."

Another point, in reference to which there is complete opposition of opinion between M. Pouchet and the panspermists, is that of the rapid multiplication of these protozoa. Observers generally, and M. Ehrenberg in particular, have described the infusoria as increasing in three ways —(1) by ordinary ova, in great numbers; (2) by gemmation, the formation and detachment of buds; and (3) by spontaneous fission, or division of a parent animal into two or more others, each perfect. By means of these varied modes of multiplication, the progeny from one or two parents becomes, in a very few days, quite uncountable. Perhaps the increase by spontaneous fission deserves most of our attention, so rapid is it. "A single wheel-animalcule which was watched for eighteen days, and which lives still longer, is capable of a fourfold increase in twenty-four or thirty hours. This rate of increase affords, in ten days, a million of beings. This, in some measure, explains the extraordinary number of infusoria in a drop of water."* Professor Owen remarks that, "to the first great law imposed on created beings, 'increase and multiply,' none pay more active obedience than the infusorial animalcules."† He then proceeds:—

"Attempts have been made to calculate approximatively this rate of increase.

"On the 14th of November, Ehrenberg divided a *Paramœcium aurelia*, a polygastric animalcule measuring one-twelfth of a line in length, into four parts, which he placed in four separate glasses.

"On the 17th, the glasses numbered 1 and 4, each contained an isolated *Paramœcium*, swimming actively about. The pieces in numbers 2 and 3 had disappeared. On the 18th there was no change.

"On the 19th, each animalcule presented a constriction across the middle of the body.

"On the 20th, No. 1 had propagated five individuals by transverse spontaneous division; in No. 4, eight individuals had in like manner been generated. On the 21st, no change had taken place.

"On the 22d, there were six nearly equal-sized individuals in No. 1, and eighteen individuals in No. 4.

"On the 23d, the individuals were too numerous to be counted.

"A similar experiment on a *Stylonichia mytilus*, an animalcule one-tenth of a line in length, was attended with nearly the same results; it was supplied with the green nutrient matter, consisting of the *Monas pulvisculus*, and on the 5th day the individuals generated by successive divisions were too numerous to be counted."

Some writers give much more wonderful accounts of the prodigious fertility of these creatures. Thus Pritchard states that "a creature, invisible to the naked eye, can, in the space of four days, give

* *Elements of Physiology*, vol. i. p. 14. Dr. Baly's translation.

* *Müller's Physiology*, vol. i. p. 15.
† *Lectures on the Invertebrata*, p. 26.

origin to no less than one hundred and forty billions of beings."* As no authority is added, nor any calculations given upon which the statement is based, it must be taken with a grain of discount probably.

It might seem strange that these minute creatures should be provided with so many forms of the reproductive energy, any one of which would appear amply sufficient to more than stock the world in brief space. Why, it may be asked, if millions can be developed by spontaneous fission from one individual in a few days, should there be an elaborate provision, as is manifest in many instances, for the more ordinary, and still rapid, mode of propagation by ova? This fact would appear to afford an additional proof, were any required, of the importance of the functions which these elementary atoms are destined to exercise in nature's economy, and the varied precautions that have been adopted to prevent the extinction of the different species. The fissiparous mode of increase is amply and more than sufficient to keep stocked any locality in which they may exist. But their favorite habitat is in pools and collections of stagnant water, which are very liable to be dried up by the summer heats; and it is extremely probable that the development of fertile ova is a provision for the continuance of the species under these apparently inauspicious conditions. The animalculæ themselves may be dried up, and afterwards revived by moisture; in this dried state they may also be blown about by the wind; but the ova, much smaller, and naturally of a lower vitality than the adult, are much more adapted for preservation under such circumstances, and are more freely blown about and conveyed as impalpable and invisible dust to other, even the most (apparently) unlikely situations; where, meeting—like the rose of Jericho already mentioned—with moisture to expand them, and the appropriate food for their nourishment, they are individually developed, and rapidly become the parents each of a countless progeny.

"'The act of oviparous generation,' the sending forth of countless ova through the fatal laceration † or dissolution of the parent's body, is most commonly observed in the well-fed *Polygastrica*, which crowd together as their little ocean evaporates; and thus each leaves, by the last act of its life, the means of perpetuating and diffusing its species by thousands of fertile germs. When the once thickly-tenanted pool is dried up, and its bottom converted into a layer of dust, these inconceivably minute and light ova will be raised with the dust by the first puff of wind, diffused through the atmosphere, and may there remain long suspended; forming, perhaps, their share of the particles which we see flickering in the sunbeam, ready to fall into any collection of water, beaten down by every summer shower into the streams or pools which receive, or may be formed by such showers; and, by virtue of their tenacity of life, ready to develop themselves whenever they may find the requisite conditions for their existence."*

But it is clear that this rapid multiplication, especially by spontaneous fission, will not suit the details of Mr. Pouchet's views; neither will the desiccation and general diffusion of the ova. He, consequently, denies both, almost absolutely and unconditionally. On the first occasion in which the phenomenon of spontaneous fission is alluded to in his work, he quotes Gleichen as saying that, in fifteen years' observations, he had only observed this three times; and adds:—"Aprés cela que des physiologistes qui n'ont peut-être jamais observé ce phénoméne viennent avec assurance parler de scission comme d'un fait normal! Vraiment il y a plus que de la presomption."† In several places, afterwards, he acknowledges ‡ having seen it take place a few times, but considers it entirely exceptional, and very rare. Apparently warming with the denial and the necessity for it, we find him, in a subsequent passage, speaking of spontaneous fission as a "charming romance" only, and doubting that it ever takes place at all—"la generation par scissiparité; ce n'est qu'un charmant roman. Si ella a lieu, *ce dont je doute beaucoup*, ella est si rare, qu'elle constitue plutôt une exception qu'une régle."§ As we advance in the work, the non-existence of this well-known phenomenon is totally discredited; by the time we reach page 399, it is altogether a "romance," without the doubt; at page 402, he has *never* seen it—"*n'ayant jamais vu;*" and finally, at page 455, it is pronounced to be "only an

* *History of Infusorial Animalcules*, p. 49.

† In most instances the ova escape by the bursting and death of the parent.

* Owen, *Opus cit.* pp. 31, 32.

† *Hétérogénie.* p. 57. ‡ See pp. 69, 88, 92.

§ Ibid. p. 303.

hypothesis without foundation, proposed to explain easily an embarrassing phenomenon, (*i. e.*, the rapid appearance and increase of the protozoa in fluids,) and which has been accepted with enthusiasm because of its strangeness."

Although there is much internal evidence in this work that both the observations and the reasonings must be accepted with much misgiving, there is nothing much more conclusive on the point than this reiterated denial of a phenomenon which can scarcely fail to be observed by any one paying the most ordinary attention to the subject;—a fact undisputed by nearly all writers of modern times. Ehrenberg's account of the minute anatomy of the infusoria has certainly been doubted by some later observers, but we have not heard that his definite observations on their division have been disputed. If our own testimony could be supposed to lend any additional support to a doctrine backed by such authority, we should not hesitate to say that we have not only very frequently observed, from beginning to end, the entire phenomenon; but further, that we have rarely examined any water at all rich in Kolpoda or Paramœcia, or the allied genera of Infusoria, without seeing the process in progress in one, two, or more individuals in the field of view.*

But M. Pouchet is singularly incapable of seeing any thing that militates against his pet theory. In accordance with this, the generation by ova, though not entirely denied, is pronounced to be very slow, very unprolific, and totally inadequate to explain the great numbers of animalculæ found after a few hours or days in putrid or decaying matters.* As might be expected, however, his greatest aversion is manifested against the doctrine of the revival of desiccated organisms; as this, if fully proved, would indicate the extreme probability of the air being amply charged with dried germs, which would be sufficient to explain most of the phenomena in question, without the necessity of any appeal to spontaneous generation. Consequently, he has never seen such a thing take place,† and although in criticising the before-mentioned experiments of M. Schultze, he remarks that his own results must necessarily be more valuable, because they are *positive*, whilst those of M. Schultze are only *negative;* yet in the present instance, and in many others, he considers that what he fails to see is more trustworthy than that which others assert positively they have seen. Dr. Carpenter, speaking of the *Rotifera*, says that "their entire bodies may be wafted in a dry state by the air from place to place; and their

* The writer trusts no apology is necessary for introducing in a note some observations of his own which bear upon this contested point, and which have before appeared in another form:—

"It is said that all animals sleep during some part of their existence; it may be so; but in these active creatures I have never seen any indications of rest of any sort. Perpetual, ceaseless motion appears to be their characteristic—generally in pursuit of something to eat; for the organic processes go on very rapidly here. But how is this? Amidst all this life and motion a *leucophrys* suddenly stops short, as though struck by an unseen hand, and remains apparently fastened to the spot: it gives a few half-turns on its axis from one side to the other,—a few convulsive starts as if to escape from the spell—and then quietly submits to its fate. Its time is come—for what? Not for death, as we generally understand it; nor is it this time to be swallowed alive. Observe it carefully for a few minutes, and you will see something eminently suggestive of thought. This animal has an anterior and a posterior extremity, rounded though they both be; it has also what may by courtesy be called a waist, half way between the two, though it is the thickest part of the body. In the position of this waist a constriction appears, as if a fine thread had been cast around the body and gradually tightened. The animal gives a rebellious kick or two during the process; but this constriction goes on until the animal is nearly nipped in two. There appears at what was the tail end the semblance of a mouth; the whole body struggles violently once more, and lo! two young creatures are the result; arising not by way of ordinary generation, but by spontaneous division into two of the old animal. On their release, they seem to give their tails a triumphant wriggle, and part in opposite directions without further leave-taking. Mr. Gosse speaks of having once seen this process in a *trachelius*, which lasted two hours. I have frequently seen the entire process completed in less than half an hour from the first appearance of constriction.

This mode of increase is very general amongst the infusoria, and a very anti-malthusian process it is. Professor Rymer Jones calculates that a single *paramœcium* will produce in a month the inconceivable number of 268,435,456 new beings. There are some species, however, very much more prolific than this, of which I do not see any specimen in our present water. Thus the *Gonium Pectorale* consists apparently of four larger globules and twelve smaller ones; when it is mature in splits in four symmetrical parts, which very soon supply their full complement of globules, and divide again in like manner. The *G. Pulvinatum* is still more remarkable, being marked out in a similar manner into sixteen squares, and thus at each division it produces sixteen new animals."

* *Hétérogénie*, p. 456.

† *Hétérogénie*, pp. 453, 546, and 624.

return to a state of active life, after a desiccation of unlimited duration, may take place whenever they meet with the requisite conditions—moisture, warmth and food."*

And again, "Experiments have been carried still further with the allied tribe of *Tardigrades*, individuals of which have been kept in a vacuum for thirty days, with sulphuric acid and chloride of calcium, (thus suffering the most complete desiccation the chemist can effect,) and yet have not lost their vitality. It is singular that in this desiccated condition they may be heated to a temperature of 250° without the destruction of their vitality; although, when in full activity, they will not sustain a temperature of more than 112° to 115.°"† Müller,‡ a most cautious authority, speaks of these revivifications as "well-known and attested facts." Leeuwenhoek and Spallanzani performed very numerous experiments corroborative of the truth of the facts. Professor Owen observes:—

"Both Oken and Rudolphi deny the revival of desiccated animals; but later observers have succeeded in producing the wonderful phenomena described by Spallanzani, especially Professor Schultze; and I myself witnessed at Freiburg, in 1838, the revival of an *Arctiscon* which had been preserved in dry sand by the Professor upwards of four years."§

M. Pouchet, against all this weight of authority, contents himself with asserting that he has never seen the phenomenon; and afterwards argues upon this negative experience as proving the fallacy of all these numerous positive observations. His mode of accounting for the difference of opinion is, that no one of these investigators has dried his animals completely, or has known how to perform the experiments with accuracy. For our own part, we have so frequently witnessed this resuscitation, that we find it difficult to understand how it can be overlooked by any one investigating it with a desire to know the truth.‖

We dwell upon this point at length, because upon it will ever be found to hinge the whole question. If organisms and ova, once dried, can not be resuscitated, there is an entire end of the panspermic theory, and the strongest presumptive proof that the infusoria *originate where they appear*, and from the matter, inorganic or other, amid which they appear; and *that* by the natural operation of secondary causes. Admitting this, we shall on the same evidence be compelled to recognize that by the operation of the same

* *General and Comparative Physiology*, § 310.
† Ibid. §65. ‡ *Opus cit.* p. 14.
§ *Lectures on the Invertebrata*, p. 40.

‖ The writer subjoins another extract from the same source as the former, bearing upon this question:

"What becomes of the countless billions of animalculæ in a small pond, when it is dried up by the heat of summer? Do they perish? or what is their condition? This is not a superfluous question; for in a very short time, after a rain, the pond is found to teem as before with life. Their dust appears to be susceptible of life again, after a complete drying—a phenomenon which might appear incredible, but that we have a direct method of proving its possibility.

"Here are three or four slips of glass, on each of which a few days ago I placed a small fresh-water crustacean—the *daphnia*, or water-flea; the water has dried up, and the little creature is dry too and dead: touch one of them with the point of a needle, and you will find it splinter like a bit of burnt paper. Now, here is a living specimen, and a very beautiful object it is for the lower powers of a microscope, with its elaborate eyes, its long branched and bearded tentacles, and its whole internal economy plainly visible through its delicately transparent coverings. You see its heart beating there near the dorsal surface, and the blood, the motion of which is marked by granules, circulating through every part of the body, and especially towards that beautiful apparatus of branchiæ, or lungs, which are attached to the legs; so providing that the energy of respiration is always proportionate to the amount of bodily action. A most vivacious and interesting little creature it is; and we may find that its death is not less instructive than its life.

"Now take one of these slips, on which there is a dry and dead daphnia; *dead* we must call it, for, on putting it under the glass, all is still. The heart can be detected even yet, but is perfectly motionless; the eye is dull and shriveled, and the legs and antennæ are crumpled together like the limbs of a dead fly; in short, look where you will, you see nothing like life. But now, add to it a drop of water, and observe the change; very soon, when the tissues have got completely moistened, you will notice a slight action, first in the legs, then in the tentacles, which resume their living appearance; and then, by degrees, the life will diffuse itself through the whole body, and you will see heart, lungs, and intestine in action, as vigorous as ever. I do not know any phenomenon of life more suggestive of curious thought and speculation than this, that a portion of dried and brittle tissue, from which all evidence of life has departed for days, should be able to resume its complicated functions under the stimulus of water. I am not aware that it has been observed before, in animals of so high an organization as these crustaceans. Long ago, Ehrenberg had observed it with regard to the *rotifera*, and stated that he had kept them in a dry state for, I believe, three years, and afterwards revived them by water. I can readily believe this, for I have so frequently repeated the experiments for shorter periods, that I feel no doubt whatever of their essential accuracy."

laws, and without the necessity for any direct act of creation, successive species arise, each one higher than the former in organization, until the power of their production is finally lost. But as size is only comparative, if these minute creatures can be formed (and some of them nearly one-twelfth of an inch in length) by nature without a Creator; why not larger animals, and man himself? And so they are, as we shall shortly see, according to this theory. If, on the other hand, the air can be shown to be prevaded by germs ready for development when the proper conditions are provided, then we have no need of the hypothesis of spontaneous generation, and it becomes simply a question to be determined by observation, whether any animalculæ are formed when due and effective precautions are adopted to prevent any germs reaching the fluid under test. As M. Pouchet positively asserts the affirmative as the result of a series of experiments, which in the relation seem perfect and conclusive; and as he therein differs *toto cœlo* from the conclusions of all other careful experimenters, it becomes necessary to inquire whether there is any internal evidence in this work that the observations may not be quite so trustworthy in practice as they are complete and beautiful in theory.

This evidence we think we find in a hasty and sometimes unwarranted reception of authority; in the production of contradictory experiments, according to the exigencies of the argument; in overproving or disproving one part of the theory at the expense of another; but most especially in the inability to see, or unwillingness to admit, the most glaring and well-authenticated facts, if they threaten to be troublesome. Of the first of these, the reception of authority, we could adduce numerous instances, but one will suffice. He represents J. Müller, whom we have already quoted as a most cautious authority, as being vanquished by the evidence in favor of heterogenesis, "*vaincu par l'evidence des preuves*,"* and quotes a passage in proof of this, which we find on reference to be merely the statement of the question and introduction to the argument, which is ultimately pronounced insufficient to decide the point!

* P. 140.

From the Dublin University Magazine.

THINGS NEW AND OLD.

The Germans are the only people who pay honor to *passive genius*. By this name they distinguish a class which we meet with every day, consisting of earnest-minded men, devoted to goodness and truth, and also largely gifted; but with hesitating speech, and such a want of fluency that they can not explain their own ideas. They have conception without expression. Their minds are like black glass, absorbing all the rays of light, but able to give none out for the benefit of others. Jean Paul calls them the "dumb ones of heaven," for, like Zachariah, they see visions of high import, and are speechless when they would tell them.

That is an extraordinary expression, "learning by heart." Might it not more correctly be called learning by mind, or impressing upon the memory? Nay, our ancestors were better philologists than ourselves, and they knew that all knowledge was useless which was not stamped upon the tablets of the heart.

Goëthe wrote his celebrated "Theory of Colors" in opposition to the Newtonian system, denying that light could be a compound of darkness. But here he overlooked that mystery of creation, which adduces brightness from gloom, and happiness from pain. The rainbow

can not appear without the cloud; but while the drops yet fall, the light shines in the darkness, and shows us every variety of color. Hereafter all darkness will disappear in light, and yet there will be "a rainbow round about the throne"—fit emblem of the Gospel which shone in our vale of tears.

It is very easy to flatter; but very difficult to praise. Women are seldom pleased with flattery, for they have acute perceptions of the ridiculous, and are more likely to be piqued than gratified by those exaggerated compliments which overstep the bounds of common sense, but she must be more than human who is insensible to praise.

Language should be a mean, but never an end. Some orators speak because they have something to say; and others find something to say because they wish to speak. Even they whose compositions are redundant with meaning, often countenance a false system by tacking on useless words to form rounded periods. "*Multum in parvo*" should be the maxim of all who paint, whether with pen or pencil. *He* shows most power who produces the greatest effect with the least expenditure of means—who spares every stroke that is not wanted, and never adds a line that does not tell. Writing is like water-color drawing. It is easy to densify what is clear, but never to make what is dense lucid. Double washes only spoil the transparencies of your shadows, weaken the brilliancies of your lights, and ruin the neutral effect of your mezzotints. If your subject be once confused, it is useless to over-lay with body-color, or to modify by toning, for you can never regain what you have lost.

Every false figure in rhetoric, and every turgid outburst of passion, spring from the supposition that truth does not contain the intrinsic elements of success among mankind. A bare truism sounds so prosaic and austere, we are apt to fancy it can not fight its road with the ignorant and the skeptical.

There are some minds whose faculties of imaginary and description resemble that beautiful little instrument—the stereoscope; bringing out plain facts into bas-relief, and giving them apparent substance. What we want is *vivid* truth; so that the homeliest household virtue, and the simplest Christian doctrine, shall appeal to us ever and anon with new force and reality.

Patience is oftentimes courage in repose; and he is the greatest hero who can suffer most silently. Calm endurance is better than hot daring; for the former is spiritual and human, whilst the latter is merely physical, and is shared with inferior animals. Regulus and Arnold Von Winkelried were nobler than even Scipio and Tell. Self-control may exist without enthusiastic excitement, but the "angel of martyrdom is brother to the angel of victory."

Recreation is necessary for the development of human nature. There is too little tendency in many of our modern amusements to encourage those lightsome processes of thought which may at once refresh without emasculating the mind. Artificial barriers of fanciful demarcation are drawn here and there in a narrow and unsympathizing spirit; whilst thoughtful persons are perplexed in the attempt to reduce these crooked boundaries under any fixed and well-defined principle. We create numerous fictitious offences, abstinence from which is accounted a creditable thing. These minor sins form a sort of supplementary decalogue; as though there were not enough crimes in the world already; without busying our intellects in inventing new ones.

The secret of beauty is rest, and calmness is an alchemy whose touch turneth all to gold. When we are over-wearied by violent emotion, we feel the soothing effect of the ministry of nature, and recognize the full significance of the deepest of her tones. Who does not love soft low music, which falls upon the ear like warm rain into the thirsty ground—little delicate flowers which do us good to look upon—and that quiet grace in women (that gentle blending of thoughts and feelings) which has often a greater fascination than physical beauty? There are certain states of mind when we prefer the adagios of nature to the diapasons of her grandest chords.

Some hold that excitement is necessary to poetry; but they should remember Hamlet's advice, "in the very tempest of

their passion to beget a *temperance* that may give it smoothness."

In the modern application of this word "temperance" to signify the moderate use of a certain dietetic substance, let us beware that it does not dwindle altogether into a narrow and limited signification. In the age of the Greek philosophers it was the representative of a cardinal virtue. In the ethics of Aristotle, Socrates, and Pythagoras, it assumes a marked prominence; whilst Plato devotes a dialogue to the right investigation of the word. And by the Apostle it was chosen to represent the truest adornment of women, and used to signify the habitual restraint of all unchristian and unlawful passions.

Love founded on duty, *i. e.*, on the natural obligations arising out of the ties of blood and nature, is not for that reason less necessary to be based on real sympathy and regard. For it is a mockery to wear a fair outside show to meet the claims of a social ritual, whilst the inner harmony of the affections is wanting.

The conceptions conveyed by the same scene are essentially different according to the souls that receive.

Men of genius are gifted with a sort of second sight. Science tells us that beyond the ordinary Newtonian spectrum, there are outer rays and more delicate varieties of color, which are only appreciable to the eyes of peculiar creatures; and so in this "universal frame" there are wonders and beauties, where the generality of men see only darkness.

A man of æsthetic tastes actually sees differently from others, for we carry our minds into every thing, and life "within us and abroad is one." The clown who gapes in blank astonishment at the statues of antiquity, physically beholds the same objects as the lover of art, who finds in them the full development of manly beauty. The American who, gazing at Niagara, calculated in his dull brain how many water-mills it would turn; and the poet who finds "sermons in stones," and "books in running brooks," have, strictly speaking, the same powers of vision. There is a certain truth in the exaggerated affirmation of Emerson, that few adults are otherwise than blind, and that only children can see nature as it is.

Yet a large company read the same poem, and see the same picture, and the chances are that certain parts will come home to the consciousness of one among the number, whilst they are a strange language to the rest. For the old Platonic theory is correct, that a man sees himself in every thing, and recognizes that which is without as a part of his inner being; for matter must be subservient to mind. Just as before a good photograph can be taken the paper must be chemically prepared, or the light will have no effect; so without an inner chamber be ready to receive them, the impressions of the eye will never be daguerreotyped on the heart.

"Give me," said a preacher, "the stone walls against which I may direct my artillery, and not the turf banks which receive and bury my shot!"

There is no task so difficult as that of startling men from their conventional dullness and uniform complaisance of indifference. One is tempted to utter paradoxes sometimes upon subjects that have been stretched and worn threadbare by repeated usings—those usings having all been in one fashion and one way. Every time an ordinary idea, or a commonplace image is associated with a great but familiar thought, the vividness and force of that thought are diminished to an infinite ratio. It is the remark of one of our profoundest critics upon Shakespeare, that he has long lost past recovery the full meaning of that celebrated passage, "To be or not to be;" nor can he tell whether it be good, bad, or indifferent, it has been so handled and pawed about by declamatory boys and men, and torn so inhumanly from its living place and principle of continuity in the play, that it has become to him a perfect dead member.

Let our pulpit orators seek for sincerity and naturalness of expression. Let them drink deeply from the old catholic language, those stores of piety inexhaustible and undefiled. Let them bring up pure and holy water from those sacred wells of antiquity!

Many good people condemn fiction, because they think it leads to false views of life, and engenders morbid sentimentality. But they overlook the strong sympathy which Providence has implanted in the human heart; so strong that nothing is so much an object of curiosity to man as man himself. Most people's minds are stored with observations on the varieties of character. Children begin the study betimes,

while the philanthropists, the slanderer, and the satirist alike continue it. Tattling arises from the same propensity, and that morbid curiosity so often evinced with regard to murders and executions, may be attributed (not so much to cruelty) as to the interest occasioned by beholding another in extraordinary circumstances of difficulty and distress. Deprived of fiction, we make it for ourselves. Indeed every man is, more or less, his own novel-writer, in which novel self not unfrequently figures as the hero, while friends and acquaintances are allowed to occupy subordinate positions. Absolute reservation of judgment is often an utter impossibility. We must form some opinions on the conduct of others, and often (trusting to our previous discoveries and experiences,) we pass rash and hasty judgments on insufficient evidence; and if a stranger be detected in giving way to some humor or impulse of the moment, it is immediately set down to be expressive in his peculiar character, while we consign him at random to occupy a certain place among the "*dramatis personæ*" of our private fiction.

For these fictions (which day-dreamers write) have the same fault which characterizes the generality of popular novels, *i. e.*, they do not take into account the inconsistency of men. The characters in most stories are consistent throughout, and are representatives of certain ideal virtues. But those of nature are masses of contradiction. "In the great world," naively remarks a German essayist, "men are compounded of truth and lies." Who can "fulfill himself," for who knows himself? Our thoughts, feelings, and actions are like the varied colors in a kaleidoscope, doomed to endless confusion, till a foreign power shall focus them into order. For what is character but the will coloring the actions? and the unguided human will is ever variable, having no optimist to depend upon. The characters of Holy Writ bear internal evidence of truth because of that very inconsistency of which infidels have complained. But the characters of most fiction writers are represented as the author would have them, and not as they are. They are conventional repetitions of favorite types, or so many manifestations of the same idea. There are of course noble exceptions, such as Homer and Shakespeare, or, in our days, Joanna Bailie, Thackeray, and Miss Evans.

All men, it has been remarked, have something of the Nimrod in their dispositions. They like no prize which stands still, and will have no game which has not first to be hunted down.

We can see the sunlight and the stars, but we can only pluck the flowers beneath our feet. Perfection is unattainable on earth, being not merely a negation of evil, but the possession of all positive excellence. The holiest man can only be compared to the high palm, whose leaves appear to touch the sky, whilst its roots are bound to earth. Yet the highest natural proof of man's immortality consists in his aspiration and strong desire after a permanent satisfying good. Our greatest pleasures are in anticipation. Hope leads us on and on. We could not enjoy half the happiness we do, if the enjoyment of the moment were limited to the moment. Be sure that our highest yearnings will at last be satisfied, for a merciful Wisdom would not have created beings with faculties and desires never to be realized. We are exiles from our native skies, and our longing hopes are the "*mal de pays*," for our Fatherland.

From Bentley's Miscellany.

THE CONSTABLE OF THE TOWER.

AN HISTORICAL ROMANCE. BY WILLIAM HARRISON AINSWORTH.

THE LORD PROTECTOR.

I.

HOW THE EARL OF HERTFORD AND SIR ANTHONY BROWN ANNOUNCED HIS FATHER'S DEATH TO PRINCE EDWARD.

For two days Henry's demise was kept profoundly secret. On Monday, the last day of January, 1547, the Commons were sent for to the lords, and the important intelligence was communicated to them by the Lord Chancellor Wriothesley, who, at that same time, acquainted them with such portions of the late king's will as it was deemed expedient to make public. The interval between the monarch's death and this public announcement of it had been employed by Hertford and his partizans in organizing their plans, and debating the measures to be adopted during the new reign. Most of the upper council, in whom the administrative authority was lodged, had been won over by Hertford's promises, and it was not thought that any serious opposition would be offered by such as could not be corrupted—amongst whom were Cranmer and Tunstal. The only real obstacle in the way of the aspiring earl appeared to be the Lord Chancellor; but even he might be brought over, or, if troublesome, could be put out. Thus Hertford felt secure, and determined upon the immediate realization of his schemes of aggrandizement.

As regarded the Duke of Norfolk, Henry's death, occurring when it did, at a moment of such extraordinary peril to that illustrious nobleman, was a piece of great good fortune, and was regarded by many who adhered to the old belief as nothing less than providential. Had Hertford, however, been allowed his own way, the duke would infallibly have been executed in accordance with Henry's warrant; but Sir John Gage resolutely refused to obey it, threatening, if the matter were persisted in, to publish abroad the king's death. By these means Norfolk was saved, though he was still detained a prisoner in the Tower.

The young Prince Edward himself was kept in ignorance of the loss he had sustained until the Sunday, when it was announced to him by his elder uncle in person, attended by Sir Anthony Brown, master of the horse, and devoted to the earl. The young prince was staying at Hertford with the Princess Elizabeth, whither they had been sent after their last interview with their royal father. The earl and his companion found the prince engaged in reading Ludovicus Vives's *Instruction of a Christian Woman* to his sister. Closing the book, and quitting the reading-desk near which he was stationed, Edward immediately advanced to meet them. He was greatly affected by the intelligence which they brought him, though not unprepared for it, and though it was conveyed in terms and in a manner calculated to rob it of much of its distressing effect.

Kneeling down before him, the earl and Sir Anthony saluted him as king, and tendered him their homage. Edward was too much affected to make any suitable reply. He turned away, and flinging himself into the arms of his sister, who was standing beside him, and equally grieved with himself, he mingled his tears with hers. "Never," says Sir John Hayward, describing the occurrence, "was sorrow more sweetly set forth; their faces seeming rather to beautify their sorrow, than their sorrow to cloud their faces. Their young years, their excellent beauties, their lovely and lively interchange of complaints in such sort graced their grief, as the most iron eyes at that time present were drawn thereby into society of their tears."

Deeming it best to let his royal nephew's grief have free course, Hertford did not offer him any consolation at first, but arising from his kneeling posture, he withdrew to a little distance with Sir Anthony.

"We have lost the best of fathers, Elizabeth," said Edward, at last, looking up at her face through his tears. "But he is in heaven, and therefore we need not mourn for him. Yet I can not help it." And he wept afresh.

"Be comforted, gentle brother," said the princess, tenderly. "Our father is happily released from suffering. I did not think we should ever see him again on earth. You must be a man now, since you are king."

"Alas!" exclaimed Edward, sobbing. "My heart sinks at the thought of it."

"And mine swells at the bare idea," rejoined the princess. "Cheer up, dear brother—or I ought rather to say, my gracious lord and master, for you are so now. How strange that sounds, Edward! Marry! it must be mighty fine to be king—to wear the diadem, and sit in state, to swear great oaths, and have all tremble at your frown—as they used to do at our father's."

"Elizabeth!" said Edward, with something of reproach. "Is this a season for jesting?"

"Nay, I do not jest," she replied, seriously. "I but gave utterance to thoughts that arose unbidden in my breast. I have ever spoken without restraint to you, dearest brother."

"And I trust you ever will do so," he rejoined, affectionately. "I love you, sweet Bess. You shall be my chief counsellor. I will confide all my secrets to you."

"Your uncle Hertford will not let you," she returned. "He is watching us narrowly now—trying to make out what you are saying to me. Have a care of him, Edward."

"I would my uncle, Sir Thomas Seymour, were here," said the young king; "but I am told he has been denied access to me."

"By whom? by my lord of Hertford?" demanded Elizabeth.

"Very likely," returned Edward. "But I *will* see him now I am king. Sir Thomas is a great favorite of yours, Bess? ha!"

"Sir Thomas discourses pleasantly, dances well, and hath an excellent ear for music," she replied.

"And is very handsome withal—own you think so, Bess?"

"Nay, I have never bestowed enough consideration upon him to declare if he be handsome or otherwise," she replied, blushing slightly.

"Out on my unruly tongue for leading me thus astray!" exclaimed Edward, suddenly checking himself. "A moment ago I chided you for unseasonable levity, dear Bess, and I now am indulging in it myself. Come with me to my uncle Hertford."

With this he took her hand, and the young pair slowly, and with much dignity, directed their steps towards the earl, who instantly advanced with Sir Anthony to meet them.

"I am glad to see your grace look somewhat lighter of heart," said Hertford, bowing profoundly; for though grief at so great a loss is natural, and indeed commendable, you have many necessary duties to fulfill which can not be delayed, and the discharge whereof will serve to distract you from the thoughts of your bereavement. I am come, with Sir Anthony Brown, your master of the horse, to escort your majesty to Enfield, where you will sleep to-night. To-morrow you will be conducted to the Tower, there to meet all the lords, spiritual and temporal, who will assemble to tend their allegiance. Have you much preparation to make ere setting out?"

"Not much, my lord—not any, indeed," replied Edward. "I am ready to attend you now. But I would fain bid farewell to my preceptors—unless they are to go with me, which I should much prefer."

"They shall follow anon," returned Hertford. "But you will have so much to do at first, that you must, perforce, discontinue your studies for awhile. Your grace will be pleased to say nothing to your preceptors as to what takes you hence, for the proclamation will not be made before to-morrow, and till then, for reasons I will presently explain, the utmost secrecy as to the demise of your royal father must be observed. This premised, I will cause them to be summoned. Ho, there!" he added to an attendant, "Let Sir John Cheke and Doctor Cox be called. His highness is about to set forth for Enfield."

"Nay, I will go to them," cried Edward.

"Your majesty's pardon," rejoined Hertford, in a low tone; "they must now wait on you."

Presently afterwards two ancient personages, of very thoughtful and studious aspect, clad alike in long black gowns bordered with fur, and having velvet caps on their bald heads, entered the hall. The foremost of them, the learned Sir John Cheke, carried a ponderous folio under his arm; the other was the no less erudite Doctor Cox. Being afflicted with gout, and requiring the support of a staff, Doctor Cox came on rather more slowly than his fellow-tutor.

Sprung from an ancient family, a ripe scholar, a proficient in oratory, and remarkably well versed in the Platonic philosophy, Sir John Cheke was the author of several learned treatises, and is described by Doctor Thomas Wilson, secretary of state to Queen Elizabeth, who knew him well, as "that rare, learned man, and singular ornament of the land." His sister was wedded to Cecil, afterwards the great Lord Burleigh. To philosophy, Cheke's fellow-preceptor, Doctor Cox, added a profound knowledge of divinity. Both Edward's tutors were extremely zealous Reformers, and it was no doubt owing to their judicious training that the young king became one of the brightest ornaments and most effectual supporters of the Protestant cause.

Edward flew to meet his preceptors, and, running up to Doctor Cox, cried, "Lean on me, good doctor—lean on me!"

Cox respectfully declined his aid, but suffered him to take his hand, and so lead him towards the Earl of Hertford, who was in the act of courteously saluting Sir John Cheke.

"My royal pupil tells me your lordship is about to take him hence," said Doctor Cox, bowing to the earl. "I am sorry his studies will be interrupted."

"They will only be interrupted for a time, doctor," replied Hertford. "Most like he will not return here," he added, with a certain significance, "but you and Sir John Cheke will rejoin him. His highness derives too much benefit from able tuition of ye both to be longer deprived of it than is absolutely needful. Ye spare no pains with him, learned sirs, of that I am well satisfied."

"Few pains are needed, my lord," replied Cheke. "More credit is due to his highness than to us for the rapid progress he hath made. Trouble or difficulty with him we have none, for he hath a rare capacity for learning, and zeal and industry equal to his ability; and that is saying no light thing. He never tires of reading, but turns from profane history to philosophy, and from philosophy to the Holy Scriptures and theology. He is mastering all the liberal sciences. Logic he hath studied, as your lordship knows, and at this present he is learning Aristotle's Ethics in Greek, and, having finished with it, he will take up the Rhetoric."

"I can corroborate all Sir John hath advanced," observed Doctor Cox. "His highness needs no spur to study—nay, his application is so great that he rather requires to be checked than stimulated. He hath recently read Cato, the Satellitium of Vives, and the fables of Æsopus. As to Latin, he knows it better than many an English boy of his age knows his mother tongue. Peradventure, your lordship hath seen his letters in that language to the king, his father?"

"I pray you speak not of them, dear doctor," cried Edward bursting into tears.

"I crave your highness's pardon!" exclaimed the worthy man, who was most tenderly attached to his royal pupil. "I would not pain you for the world."

"I know it," replied Edward, regarding him through his streaming eyes with almost filial affection; "but my heart is too full just now, and will overflow."

"Your accounts of my royal nephew's progress are most gratifying, learned sirs," observed Hertford, anxious to turn the discourse. "That you have avouched nothing more than the truth, I am sure; yet ye almost make him out a prodigy."

"And a prodigy he is," cried Sir John Cheke, with enthusiasm. "Few there be like him."

"Nay, my good uncle, you must distrust what my kind preceptors are pleased to say of me," remarked Edward. "They view me with too partial eyes."

At this juncture an interruption, anything but agreeable to Hertford, was offered by the unexpected entrance of Sir Thomas Seymour, evidently, from his looks and the state of his apparel, fresh from a rapid journey. Disregarding the angry glances directed against him by

his brother, Sir Thomas doffed his cap, flung himself on his knee before Edward, and, taking the youthful monarch's hand, exclaimed, "God save your grace! I hoped to be first to tell you that the sovereignty of this realm hath devolved upon you, but I find I have been anticipated."

"I thank you heartily, gentle uncle," replied Edward, "not for your news," he added, sadly, "for I had liefer you had brought me any other, but for your display of loyalty and attachment."

"Have I and my fellow-preceptor been standing all this while in the presence of our gracious sovereign without knowing it?" exclaimed Sir John Cheke, as Seymour arose. "I pray you pardon us, and accept our homage."

So saying, he and Doctor Cox knelt down before the young king, who gave them each a hand.

"I now see my inadvertence," said Cox, "and I again pray your majesty to pardon it."

"Think of it no more," replied Edward. "Arise, my beloved monitors and preceptors. It is true I am your sovereign lord, but you must still only regard me as a pupil."

"You have done wrong in coming here, sir, without authority," said the Earl of Hertford, in a stern tone to his brother, "and will incur the displeasure of the council."

"So I incur not his majesty's displeasure, I shall rest perfectly easy as to the council's anger," rejoined Seymour, in a tone of haughty indifference.

"Having discharged an errand which you have most officiously and unwarrantably taken upon yourself," pursued the earl with increasing wrath, "you will be pleased to depart. How! do you loiter?"

"His majesty has not commanded me to withdraw, and I only obey him," returned Seymour, carelessly.

"Nay, my good lord," said Edward to the earl, "my uncle Sir Thomas seems to have ridden hard, and must need some refreshment after his hasty journey. That obtained, he can accompany us to Enfield."

"He can not go with us," cried Hertford, forgetting himself in the heat of the moment.

"How?" exclaimed Edward, a frown crossing over his face, and giving him a slight look of his father. Without another word he then turned to Sir Thomas, and said, "Make haste, gentle uncle. Get what you lack, and then prepare to ride with us to Enfield."

"All thanks to your majesty, but I want nothing," rejoined Seymour. "I am ready to set forth with you at once."

The Princess Elizabeth, who had been standing a little apart with Sir Anthony Brown, and who appeared highly pleased with her royal brother's assumption of authority, here clapped her hands for an attendant, and commanded a cup of wine for Sir Thomas Seymour.

"I will not refuse this," said Seymour, when the wine was brought. "May your majesty reign long and prosperously!" he added, raising the goblet to his lips.

Having bidden adieu to his perceptors, and taken a tender leave of his sister, telling her to be of good cheer, and assuring her that their separation should not be long, Edward then informed the Earl of Hertford that he was ready to set forth, who thereupon ceremoniously conducted him to the door. They were followed by Sir Anthony Brown and Sir Thomas Seymour, the latter of whom lingered for a moment to whisper a few words to the Princess Elizabeth.

Horses and an escort were in readiness outside; and thus the youthful king, accompanied by both his uncles, rode to Enfield, where he rested that night.

II.

HOW KING EDWARD THE SIXTH WAS PROCLAIMED AT WESTMINSTER; HOW HE RODE FROM ENFIELD TO THE TOWER OF LONDON; AND HOW THE KEYS OF THE TOWER WERE DELIVERED TO HIM BY THE CONSTABLE.

Next morning, Henry's demise was published abroad, and as soon as the news, which spread like wildfire, became generally known, an immense crowd collected before the palace of Westminster, where barriers were erected, and other preparations made, for proclaiming his youthful successor.

A hard frost prevailed, and the day was clear and bright, though extremely cold. The general aspect of the crowd was anything but sorrowful, and few regrets were expressed for the departed monarch, though Henry had been by no means unpopular with the middle and lower ranks of his subjects, who approved of his severity so long as it did not touch themselves, but was merely exercised against the no-

bility. They did not, however, like his "Whip with Six Lashes," as the terrible statute of the Six Articles was commonly designated, for it cut right and left, and might hit any of them. All were glad he was gone, and many a remark was boldly uttered which would have caused the speaker to become acquainted with the Marshalsea or the Fleet in the king's lifetime. Most of the women — and there were plenty of them amongst the throng — loaded his memory with opprobium on account of his treatment of his spouses; but their husbands jestingly retorted that he therein showed his wisdom, since the readiest way of getting rid of a troublesome wife was to cut off her head.

But by far the most audacious speech was uttered by a tall gaunt monk in the habit of a Franciscan friar, who, mounting a flight of steps, thus harangued the crowd in a loud voice: "Know ye me not, good folk?" he said. "I am that priest who preached before the king, now lying dead in yonder palace. I am that Father Peto who preached before King Henry in his chapel at Greenwich, and who told him to his face that heavy judgments would come upon him for his sinful doings—I am he who fearlessly told the king that many lying prophets had deceived him, but that I, as a true Micaiah, warned him that the dogs should lick his blood, even as they had licked the blood of Ahab. For the which prophetic words I was condemned as a rebel, a slanderer, a dog, and a traitor. Nevertheless, my words shall come to pass. Henry, the Ahab of England, is dead, and dogs will lick his blood."

Awe-stricken and astounded at the boldness of the Franciscan, many of the crowd looked round, expecting a pursuivant to ride up and arrest him. But the officers chanced to be otherwise engaged at the moment, and Father Peto, slowly descending from the steps, mingled with the throng, and was soon lost to view. The incident, however, produced a deep impression upon the assemblage, and the monk's words were long afterwards remembered.

Meanwhile, a lofty stage had been reared within the barriers in front of the palace. The throng was kept back, and order preserved, by porters of the royal household, who made good use of their staves upon the costards of such who pressed forward too rudely, by tall yoemen of the guard, having the king's cognizance worked in gold on their breasts, and halberds in their hands, and by mounted pursuivants of arms, who rode constantly from point to point. Around the stage, upon the ground, was drawn up a bevy of trumpeters in embroidered coats, and with silken banners on their trumpets. All being, at last, in readiness, five heralds in coats of arms mounted the platform, and stationed themselves upon it, awaiting the Lords coming forth from the Parliament House; and when this occurred, one of the trumpets blew thrice, making the palace walls echo with the shrill blasts. Then there was a deep silence throughout the hitherto noisy multitude, in the midst of which Somerset herald stepped forward, and in a loud voice made proclamation in the following terms: "Edward the Sixth, by the grace of God King of England, France, and Ireland, Defender of the Faith, and of the Church of England, and also Ireland, in earth Supreme Head, greeting,—Whereas it hath pleased Almighty God on Friday last to call to his infinite mercy the most excellent high and mighty Prince Henry, of most noble and famous memory, our most dear and entirely beloved father, whose soul God pardon!——"

Thereupon the herald stopped, and immediately the whole band of trumpets blew a loud and courageous blast, stirring up every bosom. When this ceased, Garter advanced, and, at the top of his voice, cried out, "God save our noble King Edward!" upon which a tremendous shout rent the air. Many a fervent ejaculation was uttered for the young king's prosperity; but some old folk who had the reputation of wisdom shook their heads, and said, bodingly, in the language of Scripture, "Wo to the country whose king is a child!"

In the midst of these various expressions of sentiment, while some were full of joyful anticipations, and others, though very few in comparison with the rest, indulged in gloomy forebodings, while the lords, who had tarried for the proclamation, were moving away, and the heralds descending from the stage, a distant roar of ordnance was heard from the east, and a cry arose that the young king was going to the Tower; upon which the assemblage began to disperse, and a large portion moved off in the direction of the old fortress, such as could afford it taking boat at Westminster and going down the

river to London-bridge, but the majority marching past the fair cross of Charing, erected by Edward I. to his queen, Eleanor, and along the Strand, to the city. Many of the lords entered the barges at the privy-stairs, near the palace, while others, anxious to make greater display, rode through the streets to the Tower, attended by large retinues of servants. The river was alive with craft of all sorts and sizes, from the stately and gilded barge, propelled by two ranks of rowers, to the small but crowded wherry. But it was below bridge, and near the Tower, that the greatest stir and excitement prevailed. Here the river was thronged, and much difficulty was experienced by the smaller barks either in remaining stationary or in approaching the landing-places. All the barges, balingers, pinnaces, caravels, and great ships moored off the Tower, many of which had painted and gilded masts, were decorated with flags and streamers. Amongst the larger vessels were the *Mary Rose* and the famous *Harry Grace à Dieu*, the latter standing out of the water like a castle, with two towers at the stern. No sooner did the ordnance of the fortress announce the approach of the young king, than all of these ships replied with their heavy guns, which they then carried on the upper deck only, the the sides of the vessels not being pierced. By these discharges the tall ships, Traitors' Gate and the dominant White Tower itself, above which floated the royal standard, were shrouded in smoke.

Simultaneously with the proclamation of the new king at Westminster, a like announcement had been made by sound of trumpet in the city of London, under the authority of a sealed commission, by four heralds in their coats of arms—namely, Clarencieux, Carlisle, Windsor, and Chester—assisted by the lord mayor, the aldermen, and the sheriffs in their scarlet robes. Not a single dissentient voice was heard, but, on the contrary, the proclamation was received with immense cheering.

On the same day, about noon, the youthful prince on whom the crown had devolved set forth from the palace of Enfield for the Tower, accompanied by his two uncles, by his master of horse, and a large party of noblemen, knights-pensioners, esquires, and others, all very richly attired, and making an extremely gallant show. From his youth and beauty, Edward excited the admiration of all who beheld him. He was arrayed in a gown of cloth of silver, embroidered with damask gold, and wore a doublet of white velvet, wrought with Venice silver, garnished with rubies and diamonds. His velvet cap, with a white feather in it, was ornamented with a brooch of diamonds; his girdle was worked with Venice silver, and decked with precious stones and knots of pearls, and his buskins were of white velvet. His milk-white charger, a noble looking but easy-paced animal, was caparisoned in crimson satin, embroidered with pearls and damask gold, and the bridle had wide reins of red leather. For his years, Edward rode remarkably well, maintaining his seat with much grace, and promising in time to become a consummate horseman, like his uncle Sir Thomas Seymour. By the young king's express command in contravention of the Earl of Hertford's arrangement, his favorite uncle rode close behind him, and was not unfrequently called forward to his royal nephew's side. Mounted on a fiery Arabian courser, black as jet, but whose movements he controlled apparently by his will, magnificently attired, as his wont, in embroidered velvet cassock and silken doublet, by the stateliness of his person, and the haughtiness of his bearing, Seymour threw into shade all the other nobles composing the king's train, and drew all eyes upon himself, after Edward had been gazed upon. Elated by his royal nephew's notice, his breast swelled with secret aspirations, and he listened to the promptings of his towering and insane ambition. Whenever he encountered the stern looks of his brother, he replied by a glance of fierce defiance.

In this way the royal cavalcade passed through Tottenham, where a large assemblage was collected, and where numerous clerks and priests were stationed near the High Cross, bearing censers, with which they censed the young king as he rode by. Other villages succeeded and brought fresh crowds, fresh greetings, more priests, and more censing. Fortunately, as we have already mentioned, the day was extremely fine, so the procession lost none of its effect.

Ere long, the ancient, and at that time most picturesque city of London came fully in view, protected by its gray walls, only to be entered through its gates, and remarkable for its many churches, amidst

which the lofty spire of old Saint Paul's was proudly conspicuous. Joyously were the bells ringing in all these churches; but deepest and loudest in tone, and plainly distinguished above the rest, were the great bells of the cathedral. Bombards, falconets, and sakers were likewise discharged from the city walls and gates. Greatly pleased by these sounds, the youthful monarch smiled graciously, as Sir Thomas Seymour told him it was evident that his loyal subjects, the good citizens of London, meant to give him a hearty welcome.

Crossing Finsbury fields, the cavalcade entered the city by Bishopsgate. There a short pause occurred, the young king being met by the lord mayor—hight Henry Hubblethorne—and the civic authorities, and being obliged to listen to an oration, to which he replied. Acclamations greeted him on all hands as he rode slowly through Bishopsgate-street Within, and blessings were showered upon his head. Not, perhaps, expecting so much enthusiasm, or at all events unaccustomed to such a display of it towards himself, the young sovereign was much moved; but he nevertheless acknowledged the hearty reception given him with infinite grace, bowing repeatedly right and left. His youth and gentle deportment won every heart, and all hoped that a prince so gracious and full of promise might meet with good counsellors. Time had not allowed much preparation to be made for the young king's passage through the city, but several of the houses were gaily hung with pieces of tapestry and cloths of gold and silver, while embroidered cushions were set in the windows, from which comely citizens' wives and their blooming daughters looked down upon the fair young king, and on his handsome uncle.

Near the church at the top of Gracechurch street, Edward was met by a solemn procession from Saint Paul's, consisting of a number of persons carrying silver crosses, the priests and choir of the cathedral in their vestments and robes, followed by several of the city companies in their liveries.

As the royal calvalcade proceeded along Fenchurch street, the popular enthusiasm increased, until the clamor became almost deafening, and the crowd pressed so much upon the young monarch, that it was with difficulty he could move on. However, the kindly tone in which he besought those nearest him to stand back, opened a way for him almost as readily as the halberds of the yeomen of the guard could clear it. The Earl of Hertford, who ever courted popular applause, smiled upon the crowd in vain. Attention was exclusively directed to the new king, and to the splendid-looking personage who immediately followed him; and it would be difficult to say which of the two was most admired, though doubtless far the greater amount of interest attached to Edward. But Hertford had the mortification of finding himself completely overlooked at a moment when he especially desired to be an object of attention.

Amid these manifestations of general enthusiasm and delight, which could not fail to be gratifying to him, Edward reached Tower Hill, where the populace was kept within due limits by a strong detachment of the mounted city guard. Here the ancient palace-fortress of his predecessors, wherein his august father had commenced his reign, and wherein he himself was about to keep his court for a while, and hold his councils, burst upon his youthful gaze. No sooner was the young king discerned by those upon the watch for his coming, than from the summit of the White Tower burst forth a thundering welcome. The ordnance on the wharf before the fortress, on Traitor's Gate, on the By-ward Tower, on the barbican and the bastions, followed, and the roar was prolonged by the guns of the ships moored close at hand in the river.

"There spoke old *Harry Grace à Dieu*," cried Seymour. "I know his tremendous tones well enough."

"'Tis the first time I have heard those guns," observed Edward. "In sooth, they have a terrible sound."

"Your enemies think so, sire," rejoined Sir Thomas, with a laugh. "Few who withstood the shot of those guns would care to hear them again. But you will have more of it presently. The cannoniers, I see, are once more ready on the White Tower. Heaven grant your highness be not deafened by the din!"

"Nay, I like it, gentle uncle," replied the young king, with boyish delight.

As he spoke, the ordnance from the Tower belched forth again; the roar being continued by the guns of the various ships, and closed by the deep-voiced cannon of the great *Harry*.

"'Tis a grand sound!" exclaimed Edward, with a glowing countenance. "I should like to witness a siege, uncle."

"Perchance your highness may have your wish," replied Seymour. "The French are like to give us somewhat to do at Calais and Boulloign, ere long; and if they fail, the Scots are certain to find us employment. Your grace must visit Berwick. But here comes the Constable of the Tower to conduct you to the fortress."

As the second roar of ordnance died away, Sir John Gage, mounted upon a powerful sorrel charger, very richly caparisoned, issued forth from the Bulwark Gate. He was closely followed by the Lieutenant of the Tower, Sir John Markham, two esquires, likewise on horseback, and by a long train on foot, headed by the chaplain of the Tower in his surplice, attended by the verger bearing the cross, and consisting of the chief porter, the gentleman-jailer, and other officers, with forty yeomen of the guard, armed with halberds, and clad in their scarlet liveries, with the Rose and Crown embroidered upon the back—the latter walking two and two.

When within a short distance of the youthful sovereign, Sir John dismounted, and committing his charger to an esquire, bent the knee before Edward, and welcomed him to the Tower. The Lieutenant followed the example of his superior, after which the chaplain pronounced a solemn benediction. This done, the Constable and Lieutenant re-mounted their steeds; the yeomen of the guard and the others wheeled round, and returned as they had come, while Sir John Gage preceded the young monarch to the fortress

On the stone bridge, built across the moat between the barbican and the By-ward Tower, were collected all the illustrious persons constituting the upper and lower councils appointed by the late king's will, except such as were actually in attendance at the moment. Chief amongst them were the Archbishop of Canterbury, the Bishop of Durham, and the Lord Chancellor; the two former being in full ecclesiastical costume, and the latter in his robes of office, with the collar of the Garter round his shoulders. Instead of sharing in the general animation, Wriothesley looked on with lowering brows, and to judge from the sternness of his visage and the coldness of his manner towards his companions, he meditated some hostile course against them. In the next rank were the Earl of Arundel, the venerable Lord Russel, the Earl of Essex, brother to Queen Catherine Parr, and Lords St. John and Lisle. Most of these wore the Garter, and Lord Lisle was attired with extraordinary splendor. Behind them were the three judges in their robes, Montague, North, and Bromley. The rest of the brilliant assemblage consisted of Sir William Paget, chief secretary of state; Sir Anthony Denny and Sir William Herbert, chief gentlemen of the privy-chamber; the vice-chamberlain, the treasurer, and several others. Yeomen of the guard bearing halberds, trumpeters sounding loud flourishes, bearers of standards, banners, guidons, pennons, pensils, and bandrols, heralds in coats of arms, pursuivants of arms and marshals of arms with maces, came first, and the members of the council drew back on either side to allow them passage. Next came the Constable of the Tower, compelling his charger to move backwards along the whole length of the bridge, until he brought him under the vaulted archway of the By-ward Tower, where horse and rider remained motionless as an equestrian statue. While this feat was performed with so much address that no disturbance was caused to the by-standers, amid loud cheers from the beholders gathered on the walls and towers of the fortress, the king rode upon the bridge, and had got about half way across it, when the lords of the council, headed by Cranmer, advanced to pay him homage. A short address, concluding with a benediction, was pronounced by the primate, during which all the others, except Tunstal, knelt down. The blessing over, the kneeling lords arose, and exclaimed with one voice, "*Vive le noble rio Edouard!*" And the same cry was repeated with the utmost enthusiasm by Sir Thomas Seymour, who was close behind his royal nephew, by the Earl of Hertford, Sir Anthony Brown, and all upon the bridge.

Edward thanked them, in his clear musical voice, for these demonstrations of their loyalty and attachment. Then followed the ceremonial of the delivery of the keys of the Tower, which was thus accomplished. Attended by the chief porter, bearing the keys on an embroidered cushion, the Constable of the Tower rode forth

from beneath the gateway, and approached the king—the lords of the council drawing back on either side. The bearer of the keys then knelt down and proffered them to his majesty, who graciously thanked him, but desired they might remain in the custody of his right trusty and well-beloved cousin and councillor, Sir John Gage, seeing they be in no better hands. Thereupon, the Constable bowed to the saddle-bow, and, without more ado, backed his charger through the Tower gates, which were flung wide open, and so into the lower ward; the lords of the council forming themselves into a procession, and following as Gage retreated, and the king and his retinue slowly advancing, amid the reiterated acclamations of the beholders, so that, after a while, all had entered the fortress.

A striking sight greeted the young monarch as he passed through the gates. From the By-ward Tower to the Bloody Tower the whole of the lower ward was filled with archers and arquebusiers of the royal guard in their full accoutrements, drawn up in two lines—the archers on the right, and the arquebusiers on the left.

All these were picked men, of very tall stature, and their morions, breastplates, and tassettes were well burnished. Captains and other officers of the guard, distinguishable from their splendid equipments, were stationed at intervals. The sight of these stalwart fellows, who had been his father's guard in ordinary, and had attended the late king to France, as Sir Thomas Seymour informed Edward, delighted the youthful sovereign. He had much military ardor in his composition, and might have displayed it in action, if circumstances had permitted. As it was the veterans upon whom he now admiringly smiled as he rode past them, occasionally expressing a word of commendation that sank deep into the heart of him to whom it was addressed, predicted that he would become a hero.

Thus making his way, he passed through the gloomy gateway of the Bloody Tower, glancing at the iron teeth of the huge portcullis by which it was defended, and, mounting the hill, turned off on the right and entered a court, at that time existing between the White Tower and the palace, and which was now densely filled by the various personages composing the procession. Here alighting, he was ceremoniously ushered into the palace.

III.

HOW THE EARL OF HERTFORD WAS MADE LORD PROTECTOR OF THE REALM, AND GOVERNOR OF THE KING'S PERSON DURING HIS NONAGE.

Shortly after Edward's arrival at the Tower, and while the young monarch was preparing to receive all the lords, spiritual and temporal, who had flocked thither to swear allegiance to him, a conference took place in the lesser council-chamber of the White Tower, (now used as a depository for state papers and records,) to which none but members of the upper and lower councils were admitted. The lower council could not vote, but they were allowed to assist at the deliberation. At the opening of the meeting, a resolution was moved by the Lord Chancellor, who had his own motives for making the proposition, that they should all solemnly swear to maintain inviolate every part and article of the last will and testament of their late sovereign lord and master. This motion, though displeasing to some, could not be opposed, and the oath was administered accordingly.

"The oath has been taken," muttered Wroithesley, glancing at Hertford. "We shall now see who will attempt to break it."

He had not to wait long, for Sir William Paget, chief secretary of state, and Hertford's principal associate, rose from his seat, and craving their attention, said:

"Before we proceed further, my lords and gentlemen, I may remark that it will be highly embarrassing to the people, and especially to foreign ambassadors, if they are compelled to address themselves on every occasion to sixteen persons, all of them clothed with the same authority. I therefore propose to you, as a preliminary measure, that we select from our number the worthiest and fittest amongst us to be chief and president, conferring upon him the title of Lord Protector of the Realm. By such means there will be infinitely speedier dispatch of business, while no change whatever can take place in the established form of government, inasmuch as an express condition shall be annexed to the dignity, that the Lord Protector shall do no act without the concurrence of the entire body of the council."

"Your motion can not be entertained, good master secretary," cried the Lord Chancellor, rising, and speaking with much warmth. "It is in direct contradic-

tion of the late king's will, which you have just sworn to uphold, and which you can not infringe in any particular without unfaithfulness to your trust. We will have no chief, president, or Lord Protector. No such appointment was contemplated by our late royal master. I defy you to show it. Equal authority was given by him to us all, and I refuse to transfer any portion of mine to another executor, be he whom he may." And he glanced menacingly at Hertford, who, however, seemed perfectly easy as to the result.

"But if our choice should fall on you, my lord, would your objections to the step be equally strong," said Sir Richard Rich, another of Hertford's partizans, rising.

"Ay, marry would they!" rejoined Wriothesley. "I wot well you have no thought of choosing me, Sir Richard; but if you had, you could not lawfully do it, neither would I accept the office of Lord Protector if offered me, knowing it to be contrary to the intentions of our late sovereign lord and master that any one of us should have higher power than his fellows. You must take the will as it is—not as you would have it."

"Far be it from me to propose aught contrary to the true intent and meaning of our lamented master's testamentary injunctions," said Paget; "but dispatch of business and the convenience of the government generally, require that we should have a head. Otherwise, there will be nothing but perplexity and confusion. Moreover, since the Lord Protector will in reality have no power except such as is derived from us all, I can see no harm in the appointment—but much good. I therefore claim your voices for his majesty's elder uncle, the Earl of Hertford, whom I look upon as the fittest person to be our chief. If you consult your own dignity, you will grace him with the title of Lord Protector, and as he is nearest in relationship to the king that now is, and must have his majesty's interest at heart more than any other, you can not do better than appoint him governor of the king's person during his nonage."

"It can not be done, I say," cried Wroithesley, stamping furiously on the ground. "I will never agree to it—and, at least, the election must be unanimous."

"Not so, my lord. A plurality of voices will suffice," rejoined Paget.

"Be calm, I entreat you, my lord," said Sir Anthony Brown, in a low voice, to the Lord Chancellor. "Your opposition will avail nothing, but your adhesion will make you Earl of Southampton."

"Ha! say you so?" exclaimed Wriothesley, becoming suddenly appeased, and sitting down.

"Proceed without fear," whispered Sir Anthony to Paget. "I have stopped the Lord Chancellor's mouth with an earldom."

"It is well," returned the other, in the same tone. Then looking round the assemblage, he added, "If I understand aright, my lords and gentlemen, you all agree with me that it is meet my Lord of Hertford be appointed President of the Council, with the title of Lord Protector of the Realm, and Governor of the King's Person during his minority. Be pleased to signify your assent by your voices."

"Hold yet a moment!" interposed the Lord Chancellor, again rising. "Couple with your proposal the condition that the Lord Protector shall do nothing save with the assent of all the other councillors. On that understanding I am content to withdraw my opposition."

"It is distinctly so understood, my lord, and I thank you for your adhesion," replied Paget, bowing. "Are all the rest agreed?" he added.

Upon which, the others arose, exclaiming with one accord, "that no one was so fit to be Lord Protector as the Earl of Hertford, and that they were all content with the appointment."

"I meddle not with secular matters," observed Cranmer, "for the conduct whereof I am little fitted. But feeling well assured that the affairs of the government will be managed with wisdom and ability by my Lord of Hertford; and feeling also certain that no efforts on his part will be spared to purge and purify the Church, and establish the pure doctrines of Christianity, I have given my voice for him."

"I have concurred in my Lord of Hertford's appointment," said Tunstal, "in the belief that it is essential there should be a head to the government; and in the firm belief also that no better person than his lordship can be found for the office. But still adhering, as I do, to the old religion, though I have been content, for the sake of peace, to conform to many changes wrought in it by our late sovereign lord and master, I am strongly averse to any further Reformation, as it

is called, and I shall deeply regret the vote I have given if I find the Lord Protector take advantage of the power just conferred upon him to push for further separation from the See of Rome, and to widen and deepen the breaches already unhappily made in the Church.

"No fear of that, my lord of Durham," said Wriothesley; "the cause of Rome is too ably supported in the upper council by yourself, by my lords of Arundel and St. John, by Sir Edward Wotton, Sir Anthony Brown, and Doctor Nicholas Wotton; and in the lower council by Sir John Gage, Sir William Petre, Sir John Baker, and Sir Thomas Cheyney. I say nothing of myself—but you may count on all my zeal. We will resist—strenuously resist—any further interference with our religion."

"You have spoken our sentiments, my lord," said Sir Anthony Brown, and other friends of the old belief. "We are disposed to make up the breach with the See of Rome, not to widen it."

"Nay, my good lords and gentlemen, let there be no disagreement amongst us," said Hertford, in a bland and conciliatory voice. Then bowing around, he added, "Accept, I pray you all, my hearty thanks for the high and important offices just conferred upon me. My best endeavors shall be used to satisfy you all. I shall strive to reconcile differences, not to heighten them; I shall be moderate and tolerant, rather than over-zealous; and I can not far err, seeing I must be guided and controlled by your collective opinions and wisdom." This speech producing the effect desired by the new Lord Protector, he went on. "And now, my lords and gentlemen, there is a matter wherein many of ye are concerned to which I would direct your present attention, though the full accomplishment thereof must necessarily be deferred to another time. As you are all doubtless aware, there is a clause in the late king's will requiring us, his executors, to make good all his promises of any sort or kind. What these promises were it will be needful to ascertain without delay. As a means hitherto, I will call upon one who, being greatly trusted, had the best opportunities of knowing his majesty's intentions, to declare. I address myself to you, Sir William Paget, and require you to state explicitly as much as you know of the late king's designs."

"I can answer your inquiries without difficulty, my lord," replied the chief secretary, "for I have a book wherein the king's wishes were set down by myself, under his majesty's direction, by whom, as ye will see, the memoranda are signed. Here it is," he added, exhibiting the book. "From this ye will learn the honors and rewards meant to be conferred by him upon his faithful servants. Herein ye will find it written, that the Earl of Hertford shall be created Lord High Treasurer and Earl Marshal, with the title of Duke of Somerset, and his son Earl of Hertford; in support of which titles, yearly revenues are to arise to the duke and his son out of the next bishop's land that shall fall due."

"That may be, Durham," observed Tunstal. "His majesty hath shown as little scruple towards us of the superior clergy, as he did towards the monasteries."

"Nay, I trust my revenues will not arise from your diocese, my lord," said Hertford, "though it be the richest and most considerable in the kingdom. What more, good master secretary?"

"The Earl of Essex is set down to be Marquis of Northampton," pursued Paget; "the Lord Lisle to be Earl of Warwick, the Lord Wriothesley"—and he paused to glance at the Lord Chancellor—"to be Earl of Southampton; Sir Richard Rich to be Baron Rich; and Sir Thomas Seymour to be Baron Seymour of Sudley, and Lord High Admiral."

The latter announcement was received with considerable applause, especially from those of the lower council, and the subject of it was warmly congratulated by his companions. Seymour, however, looked discontented, and evidently thought he had been inadequately rewarded. One person only in the upper council took umbrage at the appointment. This was the existing Lord High Admiral, Lord Lisle.

"How is this?" he cried, angrily. "Am I to be deprived of my office?"

"Only to have something better," replied the Lord Protector. "Resign your patent in my brother's favor, and I will indemnify you with the post of Grand Chamberlain, which I now hold."

"I am quite content with the exchange, my lord," replied Lisle, his angry looks giving way to smiles.

"What of Sir John Gage?" demanded the Lord Protector. "Is he not to be exalted?"

"No mention is made of him," replied Paget, shaking his head.

"I rejoice to hear it," resounded the the deep voice of the Constable of the Tower, from the lower part of the chamber.

"Is there no title bestowed on yourself, good master secretary?" inquired the Lord Protector.

"Your lordship will see when you look over the book," replied Paget.

"Being in waiting when these memoranda were made," observed Sir Anthony Denny, "I told his majesty that master secretary had remembered all but himself; whereupon the king desired me to write him down for a yearly revenue as appeareth in the book."

"Revenues were granted to all whom the king designed to honor," said Paget, "and were destined to spring from the forfeit estates of the Duke of Norfolk; but this plan has been defeated by the duke, who, as ye know, prevailed upon his majesty to settle the estates on his son, our present sovereign. Consequently, the revenues must be derived from other sources."

"All shall be ordered in due time," rejoined the Lord Protector. "After the coronation of his present majesty, all the creations appointed by the late king shall be made. Until then, those who are most interested must be content to wait. And now, my lords and gentlemen, let us to the king, who by this time must have entered the presence-chamber. I pray your grace to come with me."

This he addressed to the Archbishop of Canterbury, who, however, held back to let him pass forth first. The rest of the council, of both degrees, followed them out of the chamber.

IV.

HOW THE YOUTHFUL KING WAS KNIGHTED BY THE LORD PROTECTOR; AND HOW THE LORD MAYOR OF LONDON WAS KNIGHTED BY THE KING.

Young Edward's first reception was held in the council-chamber of the White Tower—a vast apartment still existing, and which, if its height were only proportionate to its length and width, would almost be without equal. As it is, the chamber is very noble, with a massive timber roof, flat, and of immense weight, supported by double ranges of stout oak pillars. Around this chamber run narrow stone galleries, arched and vaulted, constructed within the thickness of the walls, and having large semicircular openings for the admission of light.

Fitted up as it was for the grand ceremonial about to take in it, the presence-chamber, for so it was then styled, looked really magnificent; neither was it at all too large for the accommodation of the numerous ecclesiastics of the highest order, nobles, knights, city authorities—the lord mayor, aldermen, and sheriffs to wit — pensioners, esquires, henchmen, pages, yoemen of the guard, marshals of arms, pursuivants, trumpeters, and others, by whom it was thronged. So overcrowded was it, in fact, that the stone galleries previously mentioned were filled.

The walls were hung with costly tapestry, and the pillars garnished with cloth of gold, the sides of the chamber and the roof being thickly set with banners of arms and descents, together with banners of the king's dominions, while the floor was deeply strewn with rushes.

At the upper end there was a cloth of estate, beneath which, upon a daïs with three steps, sat the youthful monarch; a wide open space, covered with a carpet, being kept in front of the throne by silken cords drawn from side to side, at the entrance to which space stood the vice-chamberlain and other court officials, while the exit was guarded by gentlemen-ushers.

Within these privileged precincts only two persons had as yet been admitted—the Archbishop of Canterbury and the newly-made Lord Protector. In his quality of grand chamberlain, Hertford stood on the right of the king, bearing the wand of office, while the primate occupied a place on the left.

It was a moment of intense excitement to the young king, whose breast was filled with emotions such as he had never before experienced; but though much agitated internally, he maintained an outward appearance of composure, and performed the new and difficult part he was required to enact in a manner that won him universal admiration. Once or twice he glanced at his uncle, the Lord Protector, somewhat timidly, wishing Sir Thomas Seymour were in his place, but Hertford's bland and courtier-like manner quickly reassured him. Edward's face was flushed, and his eyes unusually brilliant, for his pulse beat fast; and though his deport-

ment might want the majesty that years alone can impart, it had something infinitely more charming in the almost childlike grace of the young monarch, and in the sweetness and simplicity of his looks.

The queen-dowager, who, surrounded by her ladies of honor—the Marchioness of Dorset, the Countess of Hertford, Lady Herbert, Lady Tyrwhitt, and others—sat beneath a lesser canopy on the right side of the room, regarded him with almost maternal pride and affection. The widowed queen had been summoned from the privacy to which she had retired on the demise of her royal husband, and was now lodged within the Tower.

All needful preliminaries having been gone through, the whole of the council, headed by the Lord Chancellor, entered the reserved space, and passing one by one before Edward, who arose to receive them, knelt down, kissed the youthful sovereign's hand, and vowed allegiance to him. Such a ceremony must be always interesting, but it was never, perhaps, more interesting than on the present occasion, when the extreme youth and beauty of the monarch lent it a peculiar charm.

As Sir Thomas Seymour approached, Edward, who had not hitherto spoken, observed, with a smile,

"You have already vowed fidelity to me, gentle uncle."

"Gramercy for the reminder, my gracious liege," replied Seymour. "Yet shall not that vow, which I will most religiously keep, prevent me from taking the oath of allegiance from subject to sovereign." And kneeling down, he went through the ceremony like the others, but with even more fervor.

The whole of the council having thus sworn fidelity to the king, the Lord Chancellor advanced, and making a profound obeisance to Edward, informed him, in a voice distinctly audible throughout the whole of the vast and crowded chamber, that they had unanimously elected the Earl of Hertford to be Lord Protector.

"You have done well," replied Edward. "I approve the council's choice. But you have more to say. Proceed, my lord."

"Considering the tender years of your highness," rejoined Wriothesley, "we have deemed it expedient to appoint a governor of your royal person during your nonage."

"I am right glad of it," said Edward, fixing his eye upon Sir Thomas Seymour. "And you have chosen——"

"As your majesty will naturally anticipate, we have chosen the Earl of Hertford for your governor," replied Wriothesley.

"How?" exclaimed Edward, unable to conceal his disappointment. "Marry, this is not what I expected!"

"Does not our choice give your highness satisfaction?" inquired the Lord Chancellor, with secret malice. "The Earl of Hertford is your uncle."

"But I have another uncle," cried Edward, with much vivacity. "Marry, you should have chosen him."

"By my life, the boy is his father's true son," whispered Sir John Gage to Seymour; "he *will* have you for governor."

"He will, if they will let him have his way," replied Sir Thomas, doubtfully.

"And he will have it, if he holds firm," rejoined the constable.

Several of the upper council had exchanged looks at the vivacious expression of the young king's sentiments and inclinations, and seemed shaken in their resolve. Seymour began to think his grand point was gained. The Lord Protector looked uneasy, but Cranmer came to the rescue.

"I can easily understand your highness's preference of your younger uncle," observed the primate to the young king; "but age, experience, and I may add high station, render the Earl of Hertford the more suitable of the two to be your governor."

"The last defect might be easily amended, your grace," rejoined Edward, in a tone of pique, "though I can not so readily give my uncle Sir Thomas, my lord of Hertford's years and experience. But be it as ye will. Ye are the best judges of what is fittest for me. I heartily thank your grace and the lords and gentlemen of the council for the care taken of me."

Thus were Seymour's hopes rudely dashed to the ground. But he was somewhat cheered by a significant look directed towards him by his royal nephew—a look that did not escape the vigilance of the Lord Protector.

"If I can not be governor of his person, at all events I shall have unlimited influence over him in secret," mentally ejaculated Seymour.

Their business over, the Lord Chancel-

lor and the rest of the council retired. They were succeeded by the lords spiritual, headed by Gardiner, who, as chief prelate, walked first. Tunstal having departed with the council, the Bishop of Winchester was followed by Doctor Bonner, Bishop of London, and the long list of church dignitaries was closed by Doctor Bush, Bishop of Bristol.

Then came the lords temporal, foremost of whom was the Marquis of Dorset. The Earls of Oxford, Shrewsbury, Derby, and Sussex, succeeded. Each noble, as he arose from paying homage, exclaimed with a loud and earnest voice, "God save your grace!" Then came Lord Morley, Lord Dacre of the North, and the Lords Ferrers, Clinton, Gray, and Scrope. These were succeeded by the Lords Abergavenny, Conyers, Latimer, Fitzwalter, and Bray, with a multitude of others whom it would be tedious to particularize; neither can we call over the long roll of knights and esquires who subsequently vowed allegiance to their youthful sovereign.

Suffice it to mention that among those who thus swore fidelity to the new king were the Lord Mayor of London, and the aldermen and sheriffs in their scarlet robes.

It was while the civic authorities were yet in Edward's presence, that he prayed them to tarry a moment, and descending from the throne besought his elder uncle to knight him.

Whereupon, the Lord Protector immediately drew his sword and dubbed the king; after which, the youthful monarch took his uncle's sword, and commanding the lord mayor to kneel, struck him on the shoulder with the blade with right good will, bidding him arise Sir Henry Hubblethorne.

Being a very portly personage, the lord mayor had much ado to get up again, but having accomplished the feat, with considerable embarrassment he proffered his thanks to the youthful king, who could scarce forbear from laughing at his confusion.

Then the young monorch again gracefully ascended the throne. As soon as he faced the assemblage, they all cried out together, "God save the noble King Edward!"

The trumpets were then sounded.

Then the young king took off his cap with much majesty of action, and stood erect before them all.

Silence immediately ensued—a tag might have been heard to fall. Amidst this deep hush, in tones that vibrated through every breast, and stirred up the strongest feelings of loyalty and devotion, the young king said,

"We heartily thank you, my lords all. Hereafter, in all that ye shall have to do with us for any suit or causes, ye shall be heartily welcome."

Once more the trumpets were sounded. Cannon replied from without. And so the ceremony ended.

A grand banquet followed, at which all the lords assisted—the queen dowager sitting on the king's right, and the Lord Protector on the left.

That night, and for some time afterwards, the whole of the council, upper and lower, with many of the nobles and knights and their attendants, were lodged within the Tower.

A Wonderful Fleet of the Wind-bound.—The fleet of merchant vessels of all nations arrested for two months in their exit from the Mediterranean by the combined operation of the westerly current and the west wind, has at length been liberated by a strong Levanter. The long and unremitting prevalence of the late westerly gales rendered the accumulation of wind bound vessels in the bay at anchor behind the Rock, or cruising on the side of Cape de Gatt, almost unprecedented. The journals of the eastern coast of Spain estimated at 1500 the number between Cape de Gatt and Fuengirola. About 800 more in the bay or behind the Rock are in sight from the signal station, making altogether 2300 which have found a fair wind in the steady easterly breeze now blowing. The straits had, up to yesterday, been sealed to outward bound sailing vessels for two months, and it is feared that some loss and injury to property will have been occasioned by so long a detention of the more perishable cargoes.—*Gibraltar Chronicle, January* 11.

The "golden everlasting chain," described by Homer as reaching from heaven to earth, and embracing the whole moral world, was no fable. That chain is love.

From Blackwood's Magazine.

THE PHYSICAL GEOGRAPHY OF THE SEA.*

It was not until very recent times that physical geography assumed a form capable of being appreciated by the ordinary reading public. In our school days, a mass of dry geographical facts were laid before us; the areas of lands and waters, their products, peoples, and climates, were classed without any attempt at generalization, without any effort to attract our attention, and explain, in simple yet engrossing language, the beautiful laws which govern sea and land. The scholar was alone supposed to be capable of appreciating the wonderful mechanism of land and water, and, consequently, to him alone was unfolded the origin of the manifold phenomena of God's earth.

In this respect, however, a vast change has been wrought within the last few years, and geography, in its widest and most catholic sense, is now placed before us in forms as palatable as they are instructive. To no one are we more indebted for this pleasing improvement than to Alexander von Humboldt. With a prodigious knowledge and grasp of intellect, Humboldt was able to reassure ordinary mortals of the possibility of their understanding and enjoying the contemplation of the universe as a whole; and he it was who, breaking away from the old tramroad of physics, first showed us that it was time to generalize upon the knowledge which has been stored up for ages; and his charming writings convinced men of science, and especially geographers, that if they desired all mankind for disciples, and not mere scholastic *coteries*, they should take care to combine philosophical research and breadth of argument with the charms of eloquence and enthusiasm for the subject under discussion. The lesson has not been lost; and it appears to be now very generally acknowledged that the writer who can clothe his information in language intelligible to the majority of educated people, popularizes, and at the same time utilizes, science, attracts fresh votaries, and enlists a host of allies, whose labors, humble or trivial as they may appear, will still promote science and enlarge the boundaries of human knowledge.

But the order of intellect which is merely capable of collecting scientific data, placing them under their respective heads, and serving them up a cold, inanimate, though possibly a very learned mass, is far more common than that genius which, having arranged those facts, is able to abstract from them general principles, and, striking at some great law therein involved, places before the brain-wearied student or desultory reader, draughts of knowledge so refreshing, that both are encouraged to dive deeper towards the sources of a science whose waters reach them at the outset so clear and sparkling—such, for instance, as we have before us in the beautiful Physical Atlas of Alexander Keith Johnston, an able embodiment of a suggestion made by the illustrious Von Humboldt. There the philosopher may at a glance refresh his memory, or add to his store from maps and diagrams, embodying far more concisely than type can ever do, the latest additions to our knowledge of the phenomena of earth, air, and water, as well as that of the animal and vegetable kingdoms; and there the professional overworked lover of science may, with a facility our forefathers knew not of, cull information of true practical value without any great tax upon his time or memory. Geography in such form does not alarm the humblest capacity; and we turn again and again to such a work, because it instructs, enlightens, but never wearies or frightens us. Another excellent exemplification of the old and the new modes of treating scientific subjects, is to be found in two other works of recent publication.

* *The Physical Geography and Meteorology of the Sea.* By Captain Maury, LL.D., Superintendent of the National Observatory, Washington. Sampson Low, Son, & Co. London.

Both are especially intended for the enlightenment of the world in general, and sailors in particular. One comes from the Admiralty of the United States, the other from that of Great Britain. One is called Maury's *Sailing Directions*, and out of it has sprung a work* which has already gone through several editions; the other is a *Manual for Naval Officers*. Both are lures to sailor-students. Let any one compare them, and say which is the most useful and interesting, which the most likely to lead a sailor to note and observe all the phenomena with which he is ever surrounded, or to induce landsmen and navigators to investigate the mechanism of our globe.

In the British work, correct as it unquestionably is, fair Science unfolds her store in the most unpalatable form; she is highly orthodox, but appears almost to defy you to master her difficulties. Each learned contributor sits, Minerva-like, on the summit of a lofty height, points to all the difficulties of the ascent, assures you that on the summit of that Mount Delectable there are pastures pleasant; but never holds out a cheering hope to the student that his labors can be of the slightest value to her great cause, until he actually sits crowned in the Walhalla of the Royal Society; and, above all, she appears to deprecate any ambitious efforts to scale the cliffs of learning by short or pleasant paths. How different it is in the American work before us! Here is a subject, in the abstract hopelessly dry, treated in a manner that, from the opening of the book to its close, never tires; and we shut it with a determination to know more of the many interesting features of the ocean. The American hydrographer, in nervously-eloquent language, has summed up the evidence of man upon the laws governing the great watery element called ocean, and of the atmosphere which envelops it, and well describes the close affinity between the two. He dwells upon the temperature of each, and its life and death-creating consequences — of the winds which blow over the surface of the waters, and of the climates through which they together roll. Not only does he treat of the animate and inanimate products of the sea, and of the currents which circulate through its wastes, and impart life and action to the uttermost depths, but to Lieutenant Maury we are indebted for much information—indeed, for all that mankind possesses—of the crust of the earth beneath the blue waters of the Atlantic and Pacific Oceans. Hopelessly scientific would all these subjects be in the hands of most men; yet upon each and all of them Captain Maury enlists our attention, or charms us with explanations and theories replete with originality and genius. It is, indeed, a nautical manual, a hand-book of the sea, investing with fresh interest every wave that beats upon our shores; and it can not fail to awaken in both sailors and landsmen a craving to know more intimately the secrets of that wonderful element. The good that Maury has done, in awakening the powers of observation of the officers of the royal and mercantile navies of England and America, is incalculable. His corps of voluntary assistants may be numbered by thousands: every ship that floats in which the English language is spoken carries some one who is recording information, according to uniform system suggested by the gallant American at the Brussels Conference, and the consequent, a rapid yearly increase of information, has taken a practical shape in the construction a series of Wind and Current Charts. By these charts the mariner, wherever he may be, sees at a glance what are the prevailing winds and currents over the space he proposes to traverse, and shapes the course of his ship accordingly; indeed they are now found to be as useful out on the wide ocean, as the charts of soundings, dangers, and coast, are necessary when the land is approached. How cheerfully all these data are furnished, is well attested by one honest sailor, who, writing to the man who laboriously collates this information, and gives them its useful practical result: "It is with pleasure," he says to Maury, "that I contribute my mite towards furnishing you with material to work out still further towards perfection your great and glorious task, not only of pointing out the most speedy routes for ships to follow over the ocean, but also of teaching us sailors to look about us. I am free to confess that for many years I commanded a ship, and although never insensible to the beauties of nature upon sea and land, I yet feel that until I took up your work I had been traversing the ocean blindfolded. I did not think—I did not know the amazing and beautiful combination of

* *The Physical Geography of the Sea*: MAURY.

him whom you so rightly term, 'The Great First Thought.' Apart from any pecuniary profit to myself, from your labors you have done me good as a man. You have taught me to look above, around, and beneath me. I am deeply grateful for this personal benefit."

And this, let the reader remember, was written by a horny-fisted sailor, master of the good ship Gertrude, bound to the Chincha Islands for guano; and if the genius of the American hydrographer can thus touch and illumine one who honestly acknowledges that his "capacity to comprehend all those beautiful theories is but small"—if, as Admiral Fitzroy justly believes, these researches are exercising the most beneficial effect in improving and elevating the minds of our seamen in general—who can doubt the charms such a subject, so treated, must possess for the educated, intelligent officers of the war navies of England and America?

A knowledge of the physical geography of the sea, it should be remembered, only dates from the fifteenth century—from the voyage of Columbus, and the penetrating of those watery deserts dividing the old world from the new. Then it was that its shape, limits, and character were first appreciated, and that the accumulated errors of past ages touching the relative proportions of earth and water, were dispelled. Men commenced to form thoroughly correct ideas of our globe as a whole; and, awe-struck as those first great explorers of the unknown were with the wonders of the new worlds and nations unrolled to their ken, still they acknowledged that the grandeur of that blue ocean, whether it washed the sunny shores of Mexico and Ind, or lashed itself in majesty and wrath around the Cape of Torments or Terra del Fuego, was a thousand-fold more sublime. Since then, the enterprising and adventurous of all nations have sought to rob the ocean of its secrets—some by seeking the lands and isles hid in its wide skirts, others by penetrating beyond those limits where its congealed surface seems to say to man, that there are solitudes on the globe which he must not enter; and when it appeared as if our sailor-forefathers had left us nothing fresh to discover, the physical geographer comes forward and shows us how rich is the sea in half-explored wonders, and urges on the ardent and energetic to dive into mysteries of which our ancestors never dreamed in their most imaginative moments. The first chapter of Mr. Maury's book brings this vividly home to us. We are at once carried, not to the surface of the sea, but down into its bosom—nay more, down to the crust of the earth, the hills and plains beneath that blue Atlantic. In terse and graphic language, we learn that all sea is not an inert mass of brine, but that it is, with the exception of a thin substratum, as constantly in motion, changing its position and component parts, as the atmosphere which surrounds us. Immediately connected with the atmosphere by a constant reciprocating action, there appears to be motion down—down into the darkest depths of the sea. Here, acted upon by heat, the particles are ascending until formed into vapor—pure water sucked up in an invisible form—to be carried away to do its office, and then again return to the ocean; there, the particles, increasing in density, are sinking, whilst nature, abhorring a void, strives to fill up the vacuum. A current is created, motion is imparted, and then we observe the horizontal action of currents of water, arising from exactly similar causes to those of the currents of the winds. We mark all the wealth of those waters, in the animal, vegetable, and mineral kingdoms. Earth, dry earth, is not more peopled: take up a pinch of the soil over which lie two thousand five hundred fathoms of sea water, submit it to a microscope, and behold! though it looks and feels like fine clay, it does not contain a particle of sand, earth, or gravel. Every atom under the lens tells of life and living things; the bed of the Atlantic is strewn with the bones and shells of the myriads of creatures inhabiting its waters—creatures so numerous, that figures fail to convey an idea, or the mind to embrace their vast profusion. The navigator traversing the blue sea, sails for days in a fleet ship, through waters so thickly covered with small, pulpy sea-nettles, or medusæ, that it looks to him like "a boundless meadow in yellow leaf." The savant,* following on his trail, places a single one of these sea-blubbers under a lens, and in one of its nine stomachs finds seven hundred thousand flinty shells of microscopic diatomaceæ, one of the many animalcula of the sea. Thus each creature in this thousand square leagues of medusæ

* See the voyage of Piazza Smith, the Astronomer-Royal of Edinburgh, to Teneriffe, in 1856.

were sucking from the sea millions of these diminutive creatures, and ejecting their shells, to fall, in a gentle yet perpetual shower, down to the bed of the ocean, and there in time form strata of siliceous or chalky matter for future geologists to ponder over. And, remember, that upon all these medusæ prey legions of bigger creatures, and that into these helpless colonies sails the huge whale with cavernous mouth, and gulps down as many of them at every feast as they do of the minute diatomaceæ.

The sea has its forests as well as its barren grounds. We see the sargassos, or seas of weed, in huge prairies spreading over areas as large as our continents—that of the Atlantic tropic covers a space, according to Von Humboldt, of seven times the area of the French empire; and we know that every leaf in all that "oceanic meadow" is the home of a host of living creatures. In other places, and over regions as wide as the tropics, the palm of the sea, the kelp, throws up its graceful stem and beautiful leaf; whilst about the equator, as well as in those glacial regions around our northern pole, on the rich vegetation of the bed of the ocean, graze the walrus and the dugong, and endless colonies of creatures dwell amidst watery forests. All this, and much more, is shown in the nervous language of one who writes of an element which he loves with a sailor's pride; and then, ever keeping in view the necessity for a matter-of-fact application of the knowledge he possesses, he tells us how, across those waters and down upon what he believes to be the *silent* bed of the Atlantic, man may stretch those telegraphic cables by which in time all mankind shall become united into one family. How eager America and Britain are that this result should be achieved, is best attested by the haste with which a cable was run across in one great stretch from Ireland to Newfoundland. Half a million sterling sunk beneath two and a half miles of water, with the very best intention! Mr. Maury, with that enthusiasm for expenditure characteristic of his countrymen, calls the attempt "a splendid failure." We think so, too, and trust it may not be repeated. Now that sailors and engineers have satisfied themselves they can run a line or rope across any depth, it is high time that the electricians satisfied us that submarine cables will work over a distance of a thousand miles, before we proceed to send more capital to the same limbo as the Atlantic and Red Sea telegraph cables. Lieutenant Maury shows a telegraphic route which will run from France *via* Portugal, the Azores, and Newfoundland, with the merit of breaking the distance across the Atlantic into two stages. It must be a source of congratulation to our countrymen that the Emperor Louis Napoleon "has given his sanction, with the most liberal encouragement, to this project," and, considering that the cod-fishing establishment of St. Pierre is at the one end of this proposed line, and Cape Finisterre at the other, nothing could serve better, unless it be Mr. Cobden's assurances, to convince us of the genial disinterestedness of the French potentate, than such liberality upon a point in which French commercial interests are so very trivial. We wish our Gallic friends, and especially the Credit Mobilier, every success; but would advise British capitalists to wait until the north-about route through Iceland, Greenland, and Labrador, be thoroughly explored, and submarine telegraphy be more assured. The researches of Captain Sir Leopold M'Clintock and Captain Allen Young in that direction have been most satisfactory, in spite of a singularly severe and tempestuous season.

RIVER OF THE SEA.

It is time to return from the bottom of the Atlantic to the surface of the waters generally, and to contemplate some of those phenomena of the sea which must strike the most superficial observer; and no where does the freshness, combined with sound argument, of the American sailor shine more than in that portion of the work which treats of the Atlantic gulf-stream, and its influences upon climates and commerce. Here, striking out an original view, and accepting only in part the explanations hitherto given by philosophers of the physical forces which support and feed that wonderful current, the author places before us, in a very clear light, the causes of that constant and copious flow and reflow of water between the tropic and frigid zones in the Atlantic Ocean, without, of course, pretending to show why it should have pleased Providence to constitute a certain spot in that ocean a caldron, out of which hot water is flowing from the surface,

whilst cold water is running in below; a fact well assured in the Caribbean Sea, where the surface water has been found to raise the thermometer to eighty-three and eighty-five degrees Fahrenheit, whilst the same thermometer, lowered to a depth of four hundred fathoms, indicated a temperature of only forty-eight or forty-three degrees. The old theory of this gulf-stream originating in the rush of water into the Gulf of Mexico from the mighty Mississippi, has been long dispelled; and then the one attributing the velocity of the gulf-stream to the movement of the sun in the ecliptic shared a similar fate. Dr. Franklin imputed this stream to the escape of a mass of water forced into the Caribbean Sea by the north-east trade-wind, forming a sort of "head-water," which sought a natural level by flowing north-east into the Atlantic again. Indeed, a distinguished English geographer spoke of the gulf-stream "as an immense river descending from a higher level into the plain." Recent investigation has likewise destroyed this ingenious but unsound theory. For, touching the pressure of the trade-wind in forming such a head-water in the Caribbean Sea, it has been discovered, by the discussion of three hundred and eighty thousand observations made in the North Atlantic upon positions between the equator and twenty-five degrees north latitude, that the north-east winds are not in excess of those from the opposite direction — indeed, Maury shows that over that area the south-west wind is really the major atmospheric current. Yet the trade-wind theorists would have had us suppose that the piling up of the waters in the Caribbean Sea by this minor current of air was so prodigious as to create a power capable of discharging across the Atlantic a stream fully one thousand times the volume of the Mississippi. In the next place, so far from the hot waters of the gulf-stream at their source being at a higher level than in other parts of the current, the observations made by officers of the United States navy, during their coast survey, go to show that the gulf-stream, in its passage through the Straits of Florida, as far as Cape Hatteras, far from descending is actually forced up an ascent of about a foot in the mile; and the descending current theory is fully confuted. That the action of the trade-winds causes what sailors term a surface-drift of water, and therefore in some degree *assists* the initial velocity of this Atlantic stream, is generally allowed; but most men practically acquainted with the action of winds upon oceanic surfaces will agree with Maury, that that force is quite insufficient of itself to force such a body of water into the Caribbean Sea as to occasion a recoil which would project a volume of heated water in a great arc from the Straits of Florida as far as Cape North, in Lapland. We are, however, bound to say that a great authority, Sir John Herschell, appears to think that the trade-winds are sufficient for the purpose—not, indeed, by causing a great head of water in the seas engirt by the West Indies, but that, by a sort of billiard-ball process, the particles of water roll along before the winds, until they "cushion off" the shores of Mexico, "cannon" here and there between Cuba and Hatteras, and eventually make "a pocket" upon the coast of Western Europe. Indeed, our Goliath of science appears somewhat irritated that inquisitive sailors should dare to question theories which are so utterly at variance with their knowledge and observation; for we find, in the last edition of the *Encyclopædia Britannica*, a complaint that the "dynamics of the gulf-stream have of late, in the work of Lieutenant Mary, been made the subject of much, we can not but think, misplaced wonder, as if there could be any possible ground for doubting that it owes its origin *entirely* to the trade-winds." Maury, however, like another David, in no wise daunted by a reproof which, had it been applied to an ordinary man, would have caused him, like the sons of Israel, "to be dismayed and sore afraid," chooses his smooth stones from the brook, and calls the sea and sailors to witness that not one of the constant currents of the ocean either sets with the winds or makes such a rebound as some theorists are anxious to establish. The gulf-stream actually drives, as even landsmen know, to windward for hundreds of miles in the teeth of the trade-wind. The Mozambique current, which is as wide as the gulf-stream is long, cuts across the path of the south-east trade; the arctic currents of both poles drift the iceberg athwart the brave west winds of the temperate regions; and the Japanese gulf-stream carries the stout ship up at a railroad pace, in spite of the furious north-east monsoons and gales of China and

Tartary. The bottles which have been thrown into the sea to test currents have floated across and against prevailing winds; and they, too, vindicate Maury's assertion that, although winds do to a certain extent create surface currents and sea-drifts, they are ephemeral in their existence, limited in their effect, and have no connection with those great currents, the real arteries of the ocean. He then proceeds to show that the general circulation of the sea is dependent upon its specific gravity, and the constant and successful efforts of that element to preserve a uniform condition, illustrating his idea in the following ingenious manner:

"Let us suppose a globe of the earth's size, and with a solid nucleus, to be covered all over with water two hundred fathoms deep, and that every source of heat and of radiation be removed, so that its fluid temperature becomes constant and uniform throughout. On such a globe, the equilibrium remaining undisturbed, there would be neither wind nor current. Let us now suppose that all the waters within the tropics to the depth of one hundred fathoms suddenly became oil. The aqueous equilibrium of the planet would thereby be disturbed, and a general system of currents and counter-currents would immediately commence —the oil, in an unbroken sheet on the surface, running towards the poles, and the water, in an under-current, towards the equator. The oil is supposed, as it reaches the polar basin, to be converted into water, and the water to become oil as it crosses the tropic, rising to the surface, in the hot region, and returning as before. Thus, *without wind*, we should have a perpetual and uniform system of tropical and polar currents, though *without wind* Sir John Herschell maintains we should have no 'considerable currents whatever in the sea.'"

Mr. Maury then proceeds to show how, by the rotary movement of our planet, these currents, instead of flowing due north and south, are thrown to the right; and that if, in addition to this cause for deflection, you introduce a series of obstacles in the shape of continents, islands, and shallows, you would easily create those cross-currents, those variations in volume and velocity, which are met with in the circulation of the ocean of our planet; and he concludes by asking whether the cold waters of our northern regions, and the warm waters of the Gulf of Mexico, made specifically lighter by tropical heat, do not, in their present system of currents, represent in a great degree the relation of the imaginary oil and water?

We dare not follow the writer into all the ingenious proofs adduced in support of his views, but agree with him that the grand currents of the ocean are occasioned by the endless variations in temperature, specific gravity, and saltness of its waters, as well as a multitude of other agencies which extend from the poles to the equator; and that, of those causes, the winds represent merely a unit, and act solely on the surface of the sea, or to the extent of a few fathoms below it. The rain and the snow which fall upon its surface serve equally to disturb the equilibrium, as well as evaporation in one quarter, congelation in another; and although the sea has its deserts as well as the land, yet its waters are far more densely filled with animal and vegetable life than either the air or *terra firma;* and every creature, every coral, every phosphorescent molecule and weed, is ever abstracting or adding to the component parts of the waters in which they exist; their action is as ceaseless as the variations of heat and cold which cause our atmosphere to be ever in motion, thus calling for perpetual oceanic currents to undo their perpetual work.

As the best known and longest studied of oceanic currents, the gulf-stream affords us a perfect picture of the other, perhaps greater, but less appreciated rivers of warm and cold water which traverse our seas. Heated in a tropical furnace to about eighty-six degrees Fahr., a current of hot water, with a sharply-defined edge on either side, and flowing over a cushion of cold water running down from the arctic zone, rushes with a force equal to that of the Amazon, but with many times its volume, out of the Gulf of Mexico along the shores of Florida. There curving upon a great arc to the north-eastward, it flows three thousand miles, into the fortieth degree of north latitude; yet such is the volume of that heated water, that its temperature through so long a journey only falls to eighty-three or eighty-four degrees. In that latitude the gulf-stream overflows its banks, and, flaring out over many thousand square leagues, diminishes much in heat and velocity, yet reaches our shores, retaining enough of the former to rescue us from the horrors of a Labrador climate —to keep our seas open up to the sixtieth degree of latitude, when, on the opposite side of the Atlantic, the American con-

tinent is sealed up with ice, nine hundred and sixty miles south of the Orkneys; and that warm current of water causes the vapor-laden atmosphere of Britain, which, although much abused, is still, we believe, preferable to the six months of frost to which Canada and Russia are subjected in similar latitudes. Such a torrent of hot water traversing the Atlantic wastes naturally occasions great perturbations of the atmosphere, and the gulf-stream may justly be called "a foul-weather breeder." The English trader knows this well, but it must come much more home to the American navigator, because, on either quitting or sailing towards his shores, he has invariably to traverse the gulf-stream, and stretch across a belt of cold water, the arctic current, which intervenes between it and his home. There, and especially in the winter season, the storm, cyclone, and cross-currents raise such a sea as shatters the best found bark, and tests the skill and hardihood of the seamen. From New York to the Bay of Chesapeake, snow-storms and gales are encountered which mock all human skill and nerve. The trader from the Pacific or China finds herself in a few hours an ice-encumbered wreck, with the crew paralyzed by cold, and, but for the beneficent gulf-stream, would assuredly be lost. Then the cunning master-mariner, undismayed by the battle of the elements, occasioned by the contact of the gulf-stream with the arctic current, turns his ship's prow again towards the former, and confidently steers towards its well-defined limits.

"His bark reaches its edge, and almost at a bound, passes from the midst of winter into a sea at summer-heat. Now the ice disappears from her apparel; the sailor bathes his stiffened limbs in tepid water. Feeling himself invigorated and refreshed with the genial warmth about him, he realizes, out there at sea, the fable of Antæus and mother Earth. He rises up and attempts to make his port again, and is again perhaps as rudely met and beat back to the north-west; but each time that he is driven off he comes forth from this stream, like the ancient son of Neptune, stronger and stronger, until, after many days, he at last triumphs and enters his haven in safety, though in this contest he sometimes falls to rise no more, for it is terrible."

Such, in brief, is the cause, the purpose, and some of the phases of this river of the sea. We must pass on to other features as wonderful and strange—although, before doing so, we can not help remarking, that if these currents which flow through the surface of the waters are awe-inspiring, how much more so are the still more mysterious "under-currents," some of which, rolling over the rugged surface of the earth's crust beneath, tear up the surface-waters which are superimposed, and occasion those strange "overfalls" or "ripps," whose waves, even in the calm weather, will throw their crests upon the decks of tall ships; and the force and direction of which the inquiring mariner may occasionally ascertain by lowering objects down through the ocean until they are griped and swept away in the submarine river. Capitally do the officers of the United States brig Dolphin describe such a recent experiment. They sent a log of wood five hundred fathoms down in the Atlantic, and attached a cask as a float to the upper end of the line. Down sinks the loaded log of wood through the still depths of the upper waters, until it strikes a seam of under-current. It is then at once grasped by mysterious hands, and, to the astonishment of the sitters in the boat, the float moves off at the rate of a mile, and sometimes at two miles an hour, up in the eye of the wind, and in spite of the wash of the sea! Well might the blue-jackets rub their eyes, and wonder what monster of the deep had swallowed the tough bait, and doubt the explanation given by their officers; for even we, who may daily witness two currents of air overheard carrying the clouds in opposite directions, or observe the mountain-tops lashed by a storm, whilst the valley rejoices in calm, can not help expressing admiration and wonder at a system of circulation in the ocean, more grand because more mysterious than "the circuits of the winds." The perfection of the circulation of the sea is best attested by the fact that, as a general law, the component parts of the water in one part of the ocean and another are as like as those of the air. Currents of air and currents of water each so well do their work, that what is abstracted from either sea or atmosphere by all the million agencies ever at work is rapidly and beneficently replaced by the ceaseless machinery of nature, all working harmoniously to make the earth beautiful, and to fit it for the dwelling-place of man. They who desire to appreciate some of those wonderful laws will do well to read the chapters in Maury's work upon the

atmosphere, rains, rivers, trade-winds, monsoons, and hurricanes. They are too intimately connected with the physics of the sea to be neglected by the intelligent student, and the sailor who would comprehend the character of the shoreless ocean below which he creeps upon the surface of the sea. But we must back to the ocean, and again ask our reader to descend into its blue waters, and take a survey of the floor of the North Atlantic as spread before us, thanks to the deep-sea sounding explorations carried out since 1854. How beautifully the foundations of Europe, Africa, and America are there laid bare. Mark that on our side of the Atlantic, a long valley of about a mean depth of two and a quarter geographical miles, separates us from a great submerged area, on which there is a mile less depth of water; and in the center of this shoal region rises the volcanic group known as the Western Isles, or Azores; and then again, beyond this middle ground, another valley runs down the American shore—a valley which, in the course of the swiftest portion of the gulf-stream, attains to the remarkable depth of four miles; so that, if we stood on the bottom of that depression, the grand banks of Newfoundland and the shores of America would bound our western and northern horizon at an altitude equal to the mighty Himalayas, and we would see rising sharp and precipitous in the south, a lofty group of mountains, the Bermudas, whose summits now only rise above the tempest-tossed waters of the gulf-stream. Such is the general aspect of the bed of the ocean between the Old and New World in what we call the temperate zone; but it remains yet a question to be solved whether the gradations from the "middle ground" are gradual, or whether the depths of the sea have their cliffs and ravines, such as we observe on the earth we inhabit. We incline to think that the latter will be found to be the case; because, on passing down into that portion of the Atlantic bed between the northern tropic and the equator, we are struck with the prodigious elevations and abrupt depressions, such, indeed, as the earth above water never presents. Maury has given a graphic plate exhibiting a section of that ocean between the Cape de Verd Islands and Central America—a most ghastly valley were it laid bare of water. We see the summits of the West India Isles rising like needle-points ten thousand feet, or a mile and a half high, out of the bed of the Caribbean Sea; and then, from the heights of the Windward Group, a sheer precipice runs down nineteen thousand feet to form a hideous and yawning gulf, with here and there a sharp peak thrown up, until we reach the western base of the Cape de Verds, where another series of needles rear themselves from the crust to the awful height of twenty-two thousand feet—thin sections, as it were, of "Aconcagua's tremendous peak." This strange region beneath the sea may fitly be called the Passes of the Atlantic Ocean.

Other still more startling phenomena, the researches and industry of hydrographers will, no doubt, before long wring from the secrets of the sea; for as yet we know nothing of the bed of the Pacific, Atlantic, Indian, or navigable portions of the arctic and antarctic seas. The field is great, but the laborers are many; and whilst we are writing, the British expeditions sent forth by our Admiralty and private enterprise to explore the depths between England, Iceland, and Greenland, have returned with a fresh store of facts and information.

It is impossible, however, in treating of our present knowledge of the physical geography of the sea, as developed in Mr. Maury's work, to avoid pointing to one very prominent feature in his writings, and that is, his earnest advocacy for farther arctic and antarctic explorations. To those two unknown regions he cleverly leads us, whether we be discussing sea, air, or sunbeam, for the especial purpose of proving that, inasmuch as they are the focus of his inquiring mind, so are they deserving of every sacrifice, rather than that we should leave them unexplored. We can not object to this craving after the unknown; it is begotten of energy and genius; but let it be stated frankly by those who desire to devote themselves to a task which has baffled a James Ross and Edward Parry, that enterprise is their motive, the hope of honor their guerdon. We shall esteem them not a jot the less whether they be successful or not in our day, but we protest against theories of open water at the north, and heated continents at the South Pole, supported by such testimony as poor Dr. Kane's sea of open water in a narrow arctic strait, or an ingenious use of the drifts

of arctic navigators out of Baffin's Bay Arctic polynias have been the will-o'-wisps of the north ever since Admiral Wrangel fancied he saw one. Parry went in search of it, and could not even find, in a polar midsummer, a polynia big enough to float a boat, although he was degrees to the north of where Dr. Kane's second-mate and servant ever reached in their remarkable trip. The sea of water which so astonished Captain Penny and De Haven in 1850–51, up Wellington Channel, was found to be a mere hole in the ice occasioned by strong currents; and Lieutenant Maury should remember, that a hundred and odd English sailors, in 1852–53–54, were trudging about with their sledges over a frozen sea far to the north of and beyond that very polynia. Then, touching the drifting out of the Resolute, the Rescue, and the Fox, surely candor must acknowledge that there is no difficulty in accounting for that current, without supposing that there is a body of hot water or clear water from which that stream of pack and iceberg flows south. The glacier travels down into the plain, yet nature is ever filling up the void at the source with fresh snow and ice; so it is with the polar current. To all that great region of ice, that floe-encumbered sea between Behring's Straits and Baffin's Bay, there is only one free vent into the Atlantic. Let Maury and the polynia advocates read the voyage of H. M. S. Investigator, think of that vast area of ice-choked waters, skirted by Captain Collinson and Sir Robert M'Clure, and then say whether there is not material enough there to furnish half-a-dozen instead of one, such arctic current as that of Baffin's Bay. Arctic polynias! had there been one, Parry would have found it when he was in eighty-two and a half degrees north, within four hundred and fifty miles of the pole. The Erebus and Terror would not have turned back, as their record tells us they did, had one existed in seventy-seven degrees north, nor should we have to mourn to-day a gallant leader and two noble crews, whose bones lie beneath the snows of King William's Land, if open water at our northern pole was not the dream of theorists. It is not with a view of deprecating further arctic research that we say this much; for we know too well that it were as wise to attempt to check the flow of the Thames from its source as to restrain the love of adventure inherent in sailors; nor do we desire to damp that enterprise, which is the soul of such professions as the navies of England and America. We can well understand how, on perusing that terribly interesting voyage of Sir James Ross in antarctic seas, all its perils, all its hardships, are lost sight of, and that, if Maury call for volunteers to open up that Victoria continent, where the volcano belches forth its fires amidst the ices of eternal winter, there will many brave men step forth to execute, if it please God, their self-imposed task. But, we say, let the question rest on its own merits, as one of geographical discovery and adventure, and do not throw out mere traps for the credulous in promises of open water at one end of our globe, and warm continents worth exploration at the other. It is with regret that we dissent on any point from one whose heart is so thoroughly in the advancement of geographical science as the American hydrographer; but we can not help thinking that, apart from the vast labors which he points out as being necessary in the explorations of navigable seas—when we look at a map of the world, and see that all Central Asia, China, Japan, and three-fourths of Polynesia and Australia, as well as broad regions of the Americas, are still a sealed book to us, and unexplored by the European traveler and geographer—there is at present an extensive field lying fallow for all the enterprise and hardihood of our inquiring race, without sending them to the poles.

From Chambers's Journal.

CURIOSITIES OF COLD.

Men anticipate a coming winter with various feelings; one dreads the Christmas bills; another, the boys home for the holidays; another, a new year anxious as the last; but all men dread the cold. I know they do, for I am a surgeon, and see much of its effects among my poorer patients; and for that reason I have to consider how we ought to treat cold. Treat it! you will say—shut the door, poke up the fire, put your soul in slippers, and your body in an easy-chair. Treat it like any other unbidden guest, and shut it out. I was thinking, however, of a great class of our fellow-countrymen who go down to the sea in ships after seals and whales, or up mountains to gather in the black-faced sheep, or wander about the streets of our cities, and are picked up stiff, senseless bundles of rags by the night-police.

To such it matters but little that our natural philosophers deny the existence of cold—that it is merely the abstraction of a certain quantity of the heat which is indispensable to animal life—that warmth stimulates to vitality—and that if the temperature is lowered, it may at last reach a point when it ceases to have any effect; but, nevertheless, these facts are interesting.

The atmosphere is always robbing us of our animal heat, which has an average temperature of ninety-eight degrees. If it did not do so, if the atmosphere were itself ninety-eight degrees, we should feel it disagreeably warm, and prefer one much lower—say sixty or sixty-five degrees. How low the temperature of the body may be allowed to sink with impunity, is doubtful, and seems to vary with the individual; the robust and lively man, evolving plenty of heat, enjoys a degree of cold which makes a lean, pink-nosed, blue-lipped woman truly a miserable spectacle. Tooke, in his view of the Russian empire, says that drivers and horses suffer no inconvenience with the thermometer at twenty to twenty-four degrees below zero, and women stand for four or five hours with their draggled petticoats stiff with ice. There have been noticed, however, some circumstances which would go to show that national hardihood could not be always relied upon; for instance, in the greatest experiment of the effects of cold on man—the French retreat from Russia—the Dutch soldiers of the Third Regiment of the Grenadiers of the Guard, consisting of one thousand seven hundred and eighty-seven men, officers and soldiers, nearly all perished, as two years after, only forty-one of them, including their colonel, General Tindal, who was wounded, had returned to France; while of the two other regiments of Grenadiers, composed of men nearly all of whom were born in the south of France, a considerable number were saved. The Germans lost, in proportion, a much larger number of men than the French. Though many of the latter were reduced almost to nudity by the Cossacks having stolen their clothes, they did not die from the effects of cold in the same numbers as the Northerners, whom one would have expected to brave out that dreadful campaign with greater impunity. There is a singular mystery about the effects of cold—mysterious as these countries round which it consolidates its impenetrable barrier. When your great natural philosopher calculates with extraordinary nicety the laws of heat, we can not follow his calculations; how much more difficult, then, must it be for us surgeons to determine how much, not a whole body, but perhaps some patch of tissue, may be reduced in temperature with hope of its recovery.

Take as an example now, Napoleon's army as it returns from Russia, and let me quote from the great surgeon, Baron Larrey, no less soldier than surgeon:

"The death of the men struck by cold was preceded by pallor of the face, by a sort of idiocy, by hesitation of speech, weakness of sight, and even complete loss of sensation; and in this condition some

were marched for a shorter or longer period, conducted by their comrades or their friends. Muscular action was visibly weakened; they reeled on their legs as if intoxicated; weakness progressed gradually till they fell down, which was a certain sign of the complete extinction of vitality. The continuous and rapid march of the soldiers collected into a mass obliged those who could not keep up to leave the center of the column, and keep to the sides of the road. Once separated from the compact body, and left to their own resources, they soon lost their equilibrium, and fell into the ditches filled with snow, from whence it was difficult to remove them; they were struck suddenly with a painful choking, passed into a lethargy, and in a few seconds ended their existence. When on the heights of Mienedski, one of the points of Russia which seemed to me most elevated, many had bleeding from the nose. . . . . The external air had undoubtedly become more rarefied, and no longer offering resistance to the action of the fluids, of which the movement is constrained by the internal vital forces and the expansion of the animal heat, these fluids passed off by the points of least resistance, which are generally the mucous surfaces, especially the mucous lining of the nose. This death (from cold) did not seem to me a painful one; as the vital forces were gradually extinguished, they drew after them the general sensibility to external agencies, and with them disappeared the faculties of special sensation. We found almost all the persons frozen to death lying on their stomachs, and with no sign of decomposition."

How did any escape? One would think that what was cold to one must have been equally so to the others. We see in a garden, after some severe frost, particular species of plants affected by it, but we say the others were more hardy; but here is one species of animal suffering so unequally, as regards its individual members, as to strike the most ordinary observer with surprise.

Now, it would seem that cold affects in only two ways—it predisposes to the death of tissues, and it *kills*. In the first case, the part is not more affected than that it is very cold; its temperature is greatly lowered; the contracted blood-vessels allow but little of the vital fluid to pass. At this moment, it seems that but a small increase in the temperature may endanger the life of the part, or even of the whole body. Let us quote again from Baron Larrey: "Towards the end of the winter of 1795–96, when I was with the army of the Eastern Pyrenees, we passed suddenly from an extremely intense cold to an elevated temperature. A great number of the soldiers, especially those who were at the siege of Rosas, then had their feet frozen; some advanced sentinels were even found dead at their post in the first hours of the thaw; and although we had passed fifteen or twenty days under the influence of the severe cold, none of the soldiers of the advanced posts of the siege presented themselves at the ambulances of the intrenchment, of which I was director-in-chief, *until the date of the thaw*. So in Holland, the soldiers who for the sake of *le petit caporal* stood patiently in the snow, did so with impunity till the first thaw, when they were attacked by gangrene. And what is this frost-bite? It is a part in which the power of evolving heat and the circulation of the blood has been entirely destroyed; and this most easily occurs in situations at a distance from the seat of circulation—the toes, fingers, nose, ears, etc. The part, if thin, like the ear, may be crisp and hard, ready to break off; but still these frost-bitten parts are not actually irrecoverable; they may be thawed, but, strange as it may seem, the cold man's greatest enemy is the heat he so earnestly prays for. After the battle of Eylau, the thermometer had fallen to fourteen and fifteen degrees below zero, but not a single soldier complained of any accident from the effect of cold, though, till the 9th of February, they had passed the nights in snow, and exposed to the hardest frost." General Février, finding his enemies unaffected by his usual weapons, changed his tactics. In the night of the 9th, up went the temperature to three, four, and five degrees above zero, and the ever-active French soldiers felt themselves heavy and their feet numb, troubled with pins and needles; and on pulling off their shoes and stockings behold the toes were black and dried, and a red blush on the instep told them that the increased temperature had been too much for their chilled extremities, and that their feet were mortifying—rotting off them! They were suffering in large what we do in small, when we stick our cold toes to the bars of the grate in this cold wintry weather. We get some small patch of

skin inflamed by the heat, which, in its cold condition, it can not stand, and we call the patch a chilblain.

John Hunter froze the ears of rabbits, then thawed them rapidly, and they inflamed. Wo, says Larrey, wo to the man benumbed with cold, if he enter too suddenly a warm room, or come too near the fire of a bivouac! We lately saw a fine-looking Scotch girl with her feet gangrenous from cold; she had been tramping linen in a tub, and feeling them cold and numb, she stepped from it into another tub which held warm but not by any means *hot* water.

With regard to the treatment of frost-bitten persons, the part affected should be rubbed with cold water or snow, and then with fluids of a medium temperature, in a cold room; cautiously bring the patient into a warmer atmosphere, and administer small quantities of cordials or warm tea, then cover him up in bed, and encourage perspiration. Even where the patient seems quite dead, or has lain as if dead for days, you must give a fair trial to these remedies. When poor Boutillat, the French peasant, who awoke crying out for drink after his four days' sleep in the snow, was brought to his friends, they wrapped him in *warm* linen dipped in aromatic water, and this was but too probably the cause of the poor fellow's feet mortifying.

Now, we have said that cold may not only *predispose* to the death of animals or portions of animal tissues, but it may kill them. How it slaughters its victims, we do not exactly know; some say it paralyses the heart; others think that the cold, to use a popular expression, drives the blood inwards, and kills by apoplexy. The irresistible sleepiness that creeps over a person "lost in the snow" is well known, and has been often described; if once it is yielded to, death, under the forlorn circumstances usually present, is sure to result. But, undoubtedly, it may kill at once. Persons have been found stone-dead standing upright at their posts, all the machinery of life having stopped at once—the mouth half open, as it was when the last groan was uttered; the limbs still in the position they assumed during life, and having undergone, through the peculiar antiseptic nature of the cold, none of the changes we find after other forms of death.

Captain Waremes reports to the Admiralty thus: "In the month of August, 1775, I was sailing about seventy-seven degrees north latitude, when one morning, about a mile from my vessel, I saw the sea entirely blocked up by ice. Nothing could be seen, far as the eye could reach, but mountains and peaks covered with snow. The wind soon fell to a calm, and I remained for two days in the constant expectation of being crushed by that frightful mass of ice, which the slightest wind could force upon us. We had passed the second day in such anxieties, when about midnight the wind got up, and we immediately heard horrible crackling of ice, which broke and tossed about with a noise resembling thunder. That was a terrible night for us; but by morning, the wind having become by degrees less violent, we saw the barrier of ice which was before us entirely broken up, and a large channel extending out of sight between its two sides. The sun now shone out, and we sailed away from the northward before a light breeze. Suddenly, when looking at the sides of the icy channel, we saw the masts of a ship; but what was still more surprising to us, was the singular manner in which its sails were placed, and the dismantled appearance of its spars and maneuvers.

"It continued to sail on for some time, then stopping by a block of ice, it remained motionless. I could not then resist my feelings of curiosity; I got into my gig with some of my sailors, and went towards this strange vessel.

"We saw, as we drew near, that it was very much damaged by the ice. Not a man was to be seen on the deck, which was covered with snow. We shouted, but no one replied. Before getting up the side, I looked through a port-hole which was open, and saw a man seated before a table, upon which were all the necessary materials for writing. Arrived on the deck, we opened the hatchway, and went down into the cabin; there we found the ship's clerk seated as we had before seen him through the port-hole. But what were our terror and astonishment when we saw that it was a corpse, and that a green damp mould covered his cheeks and forehead, and hung over his eyes, which were open!

"He had a pen in his hand, and the ship's log lay before him. The last lines he had written were as follows:

"'11TH NOVEMBER, 1762.

"'It is now seventeen days since we were shut up in the ice. The fire went out yesterday, and our captain has since tried to light it again, but without success. His wife died this morning. There is no more hope'——

"My sailors kept aloof in alarm from this dead body, which seemed still living. We entered together the state-room, and the first object which attracted us was the body of a woman laid on a bed, in an attitude of great and perplexed attention. One would have said, from the freshness of her features, that she was still in life, had not the contraction of her limbs told us that she was dead. Before her a young man was seated on the floor, holding a steel in one hand, and a flint in the other, and having before him several pieces of German tinder. We passed on to the fore cabin, and found there several sailors laid in their hammocks, and a dog stretched out at the foot of the ladder. It was in vain that we sought for provisions and firewood; we discovered nothing. Then my sailors began to say that it was an enchanted ship; and they declared their intentions of remaining but a very short time longer on board. We then, after having taken the ship's log, set out for our vessel, stricken with terror at the thought of the fatal instance we had just seen of the peril of polar navigation, in so high a degree of north latitude. On my return, I found, by comparing the documents which I had in my possession, that the vessel had been missing for *thirteen* years."

Now, although these are extreme cases, and but seldom heard of, don't think that will excuse you, my good reader, if you see any even in this comparatively temperate country, for instance, cold or likely to be cold, and you do not your best to warm them. Think, while you sit over the fire, or turn in the warm blankets, or button up your over-coat—think, when you have a warm grasp of a friend's hand, or feel your child's warm cheek nestle against yours—think of the heat-abstracting powers of door-steps, and common stairs, and east winds, and parish-officers, and cold shoulders, and, if you will take my advice, let the cold of winter exhibit one of its characteristic powers on you—let it drive the blood inwards to your heart. Do what you can to diffuse warmth and comfort among your less fortunate neighbors.

From Chambers's Journal.

CONCERNING TEETH.

AN elderly gentleman once observed: "I wonder why my whiskers grow gray before my hair." "Don't you know?" replied a rude fellow. "It is because you work your jaws more than your brain." The remark was more wise than witty, though it was both; for, after all, what are more worked than jaws? Do not eating and talking divide the result of many people's lives? Are not our words our spiritual judges? Are not our bodies prepared food? Somebody—Abernethy, I suppose—says that all our diseases come from fretting or stuffing. Now, as the fretting is often more outward than inward, it wears the jaw as well as the heart; and as to stuffing, the members don't complain of the stomach, but the stomach and the members make common cause against the jaw.

This, to the million, means Teeth.

Teeth are the great blessings, curses, and characteristics of humanity. A year or two ago, there was a capital picture in the Royal Academy, the title of which was, "Toothache in the Middle Ages." A monk was sitting on a bench, on which he had laid his untasted meal—and no wonder. Eat, sir! He was past the howling stage; the skin of his cheek was tight

and stiff; you could read, in the anguish of his eyes, the red-hot throbs which stabbed his jaw; he had tied it up, and was nursing it withal, dolefully in his hand. The picture was truly catholic. Yes, at all ages, to all men, there has been, at one time or another of their lives, strong common sympathy; Sardanapalus might feel for a lazar, Aristides the Just for Sir John Dean Paul—when he had a toothache.

Is not the progress of the teeth a sign? Whether they be coming or going, whether at the first or last end of life, in the day or the night nursery—do they not supply the liveliest illustrations of our changing moods? Does not impatience *bite* her lips? Does not rage make men grind their teeth, and desperation set, and condemnation gnash them? Does not the dog show his before he bites? Does not cold make them chatter in men, and excitement in monkeys? By the way, I'm afraid to think how much of the difference between those two animals rests upon the conformation of their respective teeth. I remember hearing a lecture by Professor Owen, in which he explained the dental distinction between his audience and apes. I really forget what it was. People clapped their hands, and friends nodded triumphantly to one another, as much as to say, "Now the great man has settled the question;" but it was, I thought, a wonderfully close shave.

Do you know, reader—my stumps all stir themselves as I write!—do you know that there are three hundred and forty-one dentists in London?—professed dentists, besides all those who belong to the medical profession, and draw teeth incidentally—three hundred and forty-one, which, according to recent regulations at the War-office, is only a few short of a battalion. Allowing a month's holiday, you might have a new London dentist every day for a year, and even then leave some out: all principals, too, and no assistants, but men with smiling confidence, supple wrists, immaculate linen—don't you always notice the shirt-front of your tormentor?—and easy-chairs. Oh, that half hour of anticipation in the waiting-room, when you turn over medical books, and look at the prints and pictures on the walls, and feel a sort of savage sympathy for each victim as he is carried away from the flock and swallowed up in the inner den, where you may sometimes hear him shriek, but whence you never see him return! The outer door shuts after a quarter of an hour—those were his remains going out!

Then your own summons—— But why recall the vision of that ghastly chamber? Only, I must say that I think the process to be gone through before you have a single tooth replaced, is more extensive than need be. Why should he have the model of your whole jaw! I see him now, making at me with a little shovel full of warm wax—I hope it is new for the occasion, but it looks rather mottled—a little shovel, with a pat of wax about the shape and size of a penny bun, with a mouthful bitten out.

"Impossible! my good sir!"

But he pops it in, and squeezes it against the palate with such choking adherence that every gustatory nerve goes into fits. We must forgive his consternation, when the subtle judge of sauce and wine finds himself suddenly encountered by a pound of soft second-hand candlewax.

I really think some other preparatory plan might be devised. Couldn't they do it by photography? or under chloroform? or, better still, with something nice? As it is, hours must pass after the operation before you can get rid of the peculiar cosmetic taste it leaves—something like that you might expect if you dined with the Lord Mayor of Greenland, and sat between a tallow-chandler and a soap-merchant. Three hundred and forty-one dentists in the London Post-office Directory alone, besides those more or less instructed about teeth, discoverable in the same volume — namely, one thousand eight hundred and ninety surgeons!

Just consider what an amount of caries, inarticulation, toothache, and ill-humor this represents. The preponderance of the profession is measured by comparing it with another—take hairdressers. You want your hair cut whether you be well or ill—for every tooth drawn or replaced you have your hair cut scores of times; for every dentist there ought to be fifty of the others, but there are barely three.

It is true that much, probably most of the dentists' work, is to supply, not to withdraw. Take up the *Times*, and climb a ladder of dentists' advertisements; the extraction of teeth bears a small proportion to their replacement. The operation is so graphically attractive, so painless, so ingenious, that I wonder people don't have it done for pleasure. It would seem to be a luxurious gratification. Those who go

to be shampooed, and have their joints cracked, will presently have all their teeth drawn and put in again, once a week—say on Saturday, when they are tired.

Seriously, however, the improvements in dental mechanism are perhaps the most appreciable signs of modern surgical progress that we possess. Comparatively few enjoy the latest discoveries in cutting off legs and the like, while almost all are worried about their teeth, at one time or another; but now "sans teeth" will be no sign of age to those who can afford to buy a new set. Health, comfort, appearance are alike improved. It is no small matter to be able to procure a useful ornament and a wholesome luxury at one purchase. The demand for teeth is rapidly increasing. Immense numbers are made of a mineral compound. One wholesale dentist I know of employs more than ninety persons in manufacturing either them or things pertaining to them. The daily tale of teeth there produced is more than a thousand. Teeth made of this material, however, are liable to break, under some circumstances. Having myself twice smashed some mineral grinders, my dentist said, looking at the fracture: "Ah, I see; you must have some hippopotamus teeth!" Retaining a vivid recollection of the effect when that gentleman in the tank at the Zoölogical Gardens looks out of the water, and smiles, I said, "Ah!" rather dubiously. But he was right. Many teeth are supplied by the hippopotamus; mine are excellent. I am given to understand that those which have done service already in some native human skull are less used than they were; but one would think they must be the best, after all, if it were not for the idea of imperfect cannibalism which they suggest.

One great objection to the present operations in dental surgery is their expense—at least where teeth have to be replaced. Young dentists, who want practice, are happy to draw teeth *in formâ pauperis*. By an inverse application of the law, "you must not look a gift-horse in the mouth," the unhappy gratis patient who has had a molar broken off short half-way in the process of abstraction, may be expected, if not to thank his executioner, at least to abstain from a personal assault. You may get your teeth *drawn*, every one, for next to nothing, if not for nothing itself; but when gaps in the series have to be filled up, it is quite another thing. At present, gold is required. Thus, the poor man can not avail himself of the advance in dental mechanism. Lately, however, a new material has been discovered, called vulcanite—a preparation of India-rubber, which is so successful as probably to supersede gold. At present it is expensive, but before long, must necessarily afford much cheaper relief than the material now employed. It is very possible, however, to replace, for all practical purposes, very considerable chasms in the grinders with gutta-percha; and the best of it is, if the dentists will permit me to say so, that it is capable of application by the patient himself. Front-teeth can not be thus replaced; but suppose a man has lost two or three of his back ones, and can not afford to have them supplied by a dentist, I would advise him to act thus: Let him take a lump of gutta-percha (white is the best, because it is sweeter than the brown) about as big as a walnut. Warm it thoroughly in boiling water till it is soft as putty; then, putting it into his mouth, let him bite it well into the gap, and keep his teeth closed till the gutta-percha cools; this will oblige him to shut his mouth for two or three minutes; then let him open it carefully, and take the lump out; he has only to trim it down with his penknife, and he will be fitted with an excellent substitute for regular artificial teeth, which will serve him well for years. This is no theory, but a proved fact; and I can only account for its not being more generally known and realized, by its interference with the regular business of the profession. Forgive, dear reader, my entering into details; but the presence of jagged stumps rather assists this operation than otherwise, for they steady the gutta-percha superstructure. Already this material is recognized as capable of a popular self-application in the matter of stopping teeth, for it is sold in small lumps about the size used for this purpose. The white, I repeat, is the best and purest; though cheap, it is much dearer than the dark material used for piping and the soles of shoes.

Eventually, however, I have no doubt but that the new stuff, vulcanite, will enable the poor man to recover so necessary an assistance to health as teeth are admitted to be. I remember the time when lucifers were a great curiosity. Once, distinctly, I recollect, when I was a little boy, seeing a gentleman, who was inquisitive

about the latest discoveries in science, take two or three lucifers out of a case. After his showing and explaining them, it appeared that at the end of each match there was a small glass tube filled with some phosphoric compound, which on being crushed, produced a flame. This process was effected by nipping the end with a pair of pliers, carried in the pocket for the purpose. Altogether, it was a novel but very circuitous business, and seemed little likely to supersede the old tinder-box and brimstone-match. Its chief drawback, however, was its expense. I forget what this gentleman said he had given for the matches he exhibited, but now you can get two boxes for a half-penny.

Probably, before very long, dental hospitals will be able to afford relief to the poor by means of the material lately discovered, and replace, at a cheap rate, those necessary stones of the mill through which our food must be passed before it can replenish the wasting fabric of our frames.

From Once a Week.

WHAT IS ELECTRICITY?

The perplexities of an inquiring mind seeking to enter upon the vast fields of scientific research, included under the name of Electricity, are not a little increased by finding that the first question it naturally asks—What is electricity? What definitely am I to think of when I say that word?—will be the last to get satisfactorily answered. Yet this mighty something pervades and penetrates the whole depth and breadth of the solid earth, the water, and the viewless air, with modes of action complex and various, that blend subtly with the other forces of nature, sometimes over-mastering, sometimes subservient to them.

Not much more than a hundred years ago physical science began the enterprise of unraveling these intricacies, almost without a clue. The first hint which called men's observation to the existence of electricity was, that certain substances, when rubbed, attract light bodies, bits of paper, feathers, etc. But this fact, known to the ancients, lay isolated and barren for centuries; and it was not till after the accidental discovery, in 1746, of the Leyden jar—of an apparatus that is, which, when put in communication with a fractional machine, could accumulate in great quantity and intensity the electricity produced—that this unknown power began to be identified as one of Nature's mightiest agents — one that, in its terrible moods, could deal death and devastation.

Has the reader a clear idea of what is meant by producing, or, more properly, liberating electricity? All bodies, whether solid, fluid, or gaseous, contain electricity in a natural or neutral state, in which, that is, the two opposing principles or forces known as negative and positive electricity, exactly balance each other, and consequently give no evidence of their existence. But friction, pressure, percussion, heat, chemical action—whatever, in fact, disturbs the relative position of the particles or molecules of a body—disturbs this balance, destroys this union; and the two opposing principles, no longer neutralizing each other, are free to act on other particles, and disturb their electric equilibrium. When thus liberated, the negative manifests itself upon one surface, and the positive on a neighboring surface. This decomposed condition is called static electricity, or electric *tension*. The reünion of the two kinds, which takes place in virtue of their mutual attraction, may be either instantaneous, as in the discharge; or continuous; or "a series, in fact, of decompositions and recompositions," as in the current. This is dynamic electricity. Bodies in which a current

can thus transmit itself freely are called conductors; those that oppose a resistance insulators. It was once thought that this constituted an absolute distinction, but it is now known to be merely a difference of degree. All bodies conduct electricity to some extent—all oppose some degree of resistance.

It is a familiar fact that electricity in motion, when of sufficient intensity, gives rise during its transmission to light and heat. One condition is necessary—that it should meet with some considerable degree of resistance to its progress; and, where the resistance is greatest, there the light and heat are most intense. Very soon after the invention of the Leyden jar, Franklin succeeded in melting thin leaves of metal by means of discharges; Beccaria and Priestley also in making wires incandescent, in melting, and even in burning them, if the experiment took place in the air, and the metal was an oxidizable one. The discovery of voltaic electricity (electricity liberated by chemical action, that is) furnished a means of establishing constant currents, and showed that similar effects resulted from these as from discharges, only that the latter, when very powerful, produce an explosion that disperses the wires to powder, which is not the case with a current. Sir Humphrey Davy placed thin leaves of metal in the circuit of a voltaic pile, and found they gave flames of different colors in burning. Zinc gives a beautiful blue flame; tin a purple; lead, yellow with violet border; copper, green, accompanied with very vivid sparks. Silver gives a flame white in the center, green at the edges; gold a brilliant yellow. A crackling sound and a kind of hissing accompany the burning.

The most remarkable manifestation of electric light, both for intensity and continuity, is the voltaic arc discovered by Davy. It is produced between the conductors that terminate the two poles of a voltaic battery (the electrodes, as they are called.) Dipped in this arc of brilliant light, "all the most refractory substances, platinum, sapphire, magnesia, melt like wax in a candle; fragments of diamond, carbon, plumbago, seem to evaporate without undergoing previous fusion." The voltaic arc "may be formed in vacuum as well as in air, a proof that the combination with which it is attended in air is not the cause of the heat and light there developed." Only in this case a current of great intensity is required—sufficient, in fact, to tear off minute particles from the surface of the electrodes; and these incandescent, scintillating particles form the arc. When the arc is produced in air, or any gaseous medium, the particles of this medium become incandescent, just as a wire becomes so when traversed by a discharge or powerful current; "and all the phenomena of electric light," says De la Rive, "confirm us in the opinion that it arises from the incandescence of the particles of the medium which is traversed by the discharge or current, and from that of the particles which are detached from the electrodes." M. Silliman, having protected his eyes with green glass, *saw* the particles pass from the positive to the negative pole, and collect there like dust driven before the wind. On one electrode is found a little cone of the accumulated particles, in the other a slight hollow. Sometimes, however, the transport takes place in both directions.

Electric light approaches more nearly to solar light than that produced from any other source. It presents no trace of polarization; its spectrum contains the same colors as the solar spectrum, with the addition of several very clear rays of great brilliancy, which differ in number and position according to the nature of the electrodes employed. As to insensity, the light of the arc produced by a powerful battery, is to solar light as 1 to 2·5; while the light produced by the combustion of gaseous mixtures is to the electric light as 1 to 56. A daguerreotype impression may be obtained of an object illuminated by it.

Chemical action was spoken of above, as the source of voltaic electricity. This, however, was long a disputed point; MM. Becquerel, Karsten, and others, regarding the mere contact of the two heterogeneous metals forming part of two consecutive pairs of a pile, as the exciting cause. A few exceptional facts appeared stubbornly to support this view. But M. De la Rive, who has made the theory of the voltaic pile a special subject of investigation, holds they may be otherwise interpreted, and on the whole considers it well established that chemical action, not contact, is the *source*.

Viewed as an *effect*, chemical action produced by electricity has yielded results which, both in scientific and in practical importance, transcend all others. It

has unlocked recesses of which the very existence was previously hidden. Substances that had baffled all other means of chemical analysis, and were regarded as elementary, electricity has resolved. When its decomposing power was first discovered, it was thought new elements, and in particular a new kind of acid, were produced by it. But a lynx-eyed investigation of the question enabled Davy fully to establish, that it only *liberates* the pre-existing elements of bodies exposed to its action, and thus facilitates their combination with other elements that may be present. In this manner entirely new *compounds* have been formed. It not only liberates the elements—it transports them; a characteristic that belongs to decomposition by electricity alone. Bodies that submit to its action (for all do not) are called electrolytes

To conclude, Electro-Chemistry seems likely to prove also the quarter whence most light will come on the great question alluded to at the outset—What is Electricity? It has, at all events, effectually exploded the old notion of a fluid, or two fluids; and has led to its being universally regarded as a force. But, What kind of force? is still the question. Its power over the atoms of matter, to alter their relative position, and constrain or accelerate their movements in a solid body, may be proved, but can not be seen, except in those more violent manifestations that shatter and destroy. In electrolysis, on the contrary, we partly *see* into the very mode of working. We see the firmest unions dissolved, the elements in definite proportions carried this way and that, and forced into new combinations. More than one electro-chemical theory (involving of course the nature of electricity itself) has arisen. The subject, though obscure, is so interesting, that perhaps the reader may be tempted to follow a very brief statement of M. De la Rive's view of it, which is based on that of Berzelius. He sets out from the principle, that every atom has two electric poles, contrary, but of the same force. Whether caused by a movement of rotation in the atom or not, he regards as a question that can not at present be decisively answered. One atom differs from another in its polarity, only in as much as one may have a more powerful polarity than another, but in the same atom the two electric poles are always of the same force. When two insulated atoms are brought near to each other, if they have an equal force of polarity, it is by their bulk they attract one another, and unite; which is molecular attraction, or *cohesion*. But if one have a stronger polarity than another, they attract each other by their opposite poles, and a new or compound atom is formed, also having two equal and contrary electric poles; and this is *chemical affinity*.

It is to be borne in mind these are not the fanciful speculations of men eager for the goal yet impatient of labor, who suffer a lively imagination to outrun knowledge. Neither do they pretend to claim acceptance as established truth, but simply as an hypothesis which, in the judgment of some of those standing foremost in the ranks of discovery, seems best to harmonize and bind together a great body of anomalous facts; an hypothesis that will stand or fall according as increased knowledge shall strengthen or undermine its foundations; but by no means to be rejected on the ground that it contradicts the evidence of the senses, or handles a subject beyond our reach. Unless a man is prepared to say, "The earth stands still, the sun moves, because *I see them do so*," he has no right to regard the evidence of his senses as impregnable ground. It was a very singular lesson Astronomy taught us on this head, though we are now so familiar with it as to have ceased to perceive its meaning. Think what a slumbrous stillness rests upon the face of nature; how endlessly broad and deep seem to spread out the foundations of the earth. Then think again what is the truth: a little rounded star in rapid, ceaseless, threefold motion; not slumbering on its broad foundations, but hung baseless mid infinity, it "taketh no rest." Perhaps we have been equally deceived at the opposite end of the scale; perhaps the fundamental idea we have of solid matter —that its particles are relatively at rest, may be overthrown, and ceaseless motion proved the condition of existence for atoms as for worlds. What then? We can not afford to despise our senses, since through them alone comes our report of the world without. Science deals with them as an able lawyer deals with a pack of stupid or roguish witnesses; cross-questions them, sets one against the other, sifts and balances the conflicting evidence, marshals it, puts sense into it—and in the end triumphantly draws truth out of it.

It is but shallow philosophy to sneer at the senses, for without them man's reason would be a king without a kingdom. Dwell rather on the ingenuity with which —when once he has got a hint of new fields to be explored—man provides himself with supplementary senses, as it were: with the telescope, makes his eyes as the eyes of a giant; with the microscope, sees into the mysteries of the smallest flower, like King Oberon himself; with electroscope, galvanometer, and other dainty devices, achieves a delicacy of perception which can detect the feeblest trace or lightest movement of Nature's stealthiest agent.

From the Dublin University Magazine.

TISCHENDORF AND THE CODEX SINAITICUS.

THE name of Tischendorf does not now appear for the first time in connection with Biblical literature. The course of authorship of this distinguished savant began as long ago as 1838, when an edition of the Greek New Testament proclaimed his qualifications for the task of textual criticism, and decided his career. The patronage of his own sovereign furnished him with the means of visiting Paris for the purpose of exploring its manuscript treasures, especially its *Codex Ephremi Rescriptus*, one of the most valuable palimpsests in the world. Since then Great Britain, Holland, Switzerland, Italy, Malta, Egypt, Palestine, Syria, Constantinople, have been traversed in the prosecution of his researches, and have borne witness to his combined learning and zeal. To sum up his publications were to fill a paragraph; suffice it to say, that his "Codex Friderico-Augustanus," his "Monumenta Sacra Inedita," his "Evangelium Palatinum," his "Codex Amiatinus," his Codex Claromontanus," his "Palimpsest Fragments," his "Apocryphal Acts," "Apocryphal Gospels," "Apocryphal Apocalypses," and his successive editions of the Greek New Testament, have established his reputation as the largest contributor to texual criticism of his day, and made the name of Tischendorf celebrated far beyond the bounds of his quiet university.

In the volume before us* we have record made of one of his latest journeys, and of certainly his greatest acquisition—a very ancient manuscript, containing the most important parts of the Old Testament in Greek, and the entire New Testament, without omission or erasure, *ne minimâ quidem lacunâ deformatum*. Any manuscript of the Holy Scriptures, in any language, with a credible date reaching above the tenth century, would be considered a valuable addition to our stores of critical matter for settling the sacred text, for even these are comparatively few; but to meet with one whose date is assigned, unhesitatingly, by its finder to the earlier half of the *fourth century*, was enough to turn Tischendorf crazy with joy. His record of his emotions at the moment of discovery is quiet, but the exultation of his feelings could not be disguised:—"*Quae res quantam in admirationem me conjecerit, dissimulare nequibam.*"

It appears that in his two previous journeys to the East, of the earlier of which he makes interesting report in his *Reise in dem Orient*, 1845–48, he had been, beyond expectation, successful in the acquisition of materials for publication, of one sort or another. The second journey—that of 1853, nine years after the first—bears more the character of a great disappointment than the preceding, as a narrative of the circumstances will explain.

In the year 1844 the King of Saxony furnished Professor Tischendorf with funds, to enable him to prosecute his inquiries after parchments and old books in the

* *Notitia Editionis Codicis Bibliorum Sinaitici.* Edidit Ainoth. Frid. Const. Tischendorf. Lipsiæ: F. A. Brockhaus. 1860.

East. Amongst the acquisitions of that strip was a fragment of a Greek Septuagint, rescued by Tischendorf from the destruction awaiting it, and other unvalued scraps and loose leaves in a basket, where they were carelessly tossed to rot in the damp, or be consumed by ants. A larger fragment of that MS., containing Isaiah and Maccabees, he begged for in vain, because the importunity of the stranger taught the ignorant monks to set a value on their relic which they had not had independent knowledge of their own to appreciate. He obtained, however, enough of the disjointed leaves and smaller portions to constitute a satisfactory specimen of the whole. These fragments Tischendorf published in 1846, under the title of the *Friderico-Augustan Codex*, in compliment to his royal patron. But the lengthened period of nine years from his first journey did not abate his longing for the remainder of the precious manuscript (*ipsis membranis pretiosissimis*) which he had left in such unsafe custody, and which his own publications had made so widely known. He expected that, during the interval, the MS. would have found its way into a European library, through the care of some appreciative traveler; but no tidings came of such a destination. This prompted the journey of 1853, undertaken with a determination to transcribe all that remained of the document, and to publish it on his return. But, on his presenting himself at the Convent of Mount Sinai, to his dismay, the document could nowhere be found. Describing his disappointment, in his *Mon. Sac. Ined.* of 1855, he expresses his belief that it must have come to Europe, and that it lay somewhere concealed. Should it, however, be irrecoverably lost, he very fairly declares himself innocent of neglect of the manuscript, for he had frankly informed its custodians of its value, and urged upon them its more careful preservation.

Matters remained in this position for six years longer—Tischendorf engaged with his professorial duties, and editing his laborious volumes of antiquarian research, together with his Critical Greek Testaments—when, by the intervention of the Prince Von Falkenstein, Prime Minister of the King of Saxony, and the successive Russian Ambassadors at Dresden, the Baron Von Schroeder, Prince Wolkonsky, and Baron Von Kotzebue, aided by the intercession of Von Noroff, Von Kovalewsky, and Theodore Von Grimm, the eager professor's wish was gratified with the injunction to return to his former scene of action, and secure for the Emperor of Russia what spoil he might of ancient Greek and Oriental literature. On the last day of January, 1859, Tischendorf reached his old quarters in the Convent of St. Catherine, and opened his campaign, or rather foray, with so little success, that four days afterwards he completed his arrangements, by hiring horses and camels, for returning to Cairo on the 7th of February. But an unexpected and most delightful event occurred, mean while, that rendered this last journey memorable above all others undertaken by the professor; for, conversing with the sub-prior, on the Septuagint translation, of which Tischendorf had brought with him printed copies, along with his Greek New Testaments, the conventual brother turned out of a piece of cloth, for his inspection, the very document of which he had come in search.

This revelation was a light rising upon his darkness—the flashing of an instantaneous dawn. Turning over the coveted folios, he found them to contain a considerable part of the Old Testament, the whole of the New, and the Epistle of Barnabas, along with the first part of the Shepherd of Hermas. Xenophon's returning ten thousand never hailed the waters of the Black Sea with more gladsome Θαλαττα, Θαλαττα, after their wearisome march and perilous adventure, than Tischendorf the resurrection of his buried love. Unable to sleep through excess of joy, he bore the treasured parchments to his cell, and spent the night in copying the recovered Barnabas. Starting, nevertheless, on the appointed day, he obtained the promise of the superior that the mutilated Codex would be forwarded after him to Cairo, to be copied, as soon as the license to do so should reach the convent from their ecclesiastical head in Egypt. A very few days sufficed to obtain the required permission, and Tischendorf rejoiced in his prize, retaining it in his possession till, with the aid of two friends, he had copied its every word, letter, sign, and variation. Two months sufficed for this Herculean task, which comprised the transcription of upwards of one hundred thousand lines of Greek. This done, his joy was complete.

The originial MS., it was suggested,

might very appropriately be presented to the Emperor of Russia, a distinguished professor and protector of the Christian faith; and the hint met with unanimous compliance. As no one, however, had, at the time, the right of making the presentation, in consequence of Archbishop Constantine's death and the non-consecration of his successor, it was concluded to lend the MS. for the purpose of completing an accurate impression of its contents, leaving the question of its final ownership for future determination.

From May to September Tischendorf was free to traverse Palestine in search of hidden MSS., and was at Jerusalem at the same time with the Duke Constantine, who lent his royal countenance to his labors. In Constantinople the Russian ambassador, Prince Lobanow, received him as his guest in his palace, a circumstance we feel pleasure in recording, the priesthood of letters receiving due homage at the hands of the princes of the people. From this enlightened nobleman, Tischendorf learned of the existence of another notice since his own of the Sinaitic Codex, namely, one from the pen of the Archimandrite Porphyry, who, in 1846, had examined its peculiarities, when he visited the monastry in the desert. These he describes in his publication of 1856 at St. Petersburg, but makes such mistakes as would naturally occur in the case of a person not conversant with textual criticism. The Greek divine, for instance, supposes the MS. to follow the Euthalian prescript in its stichometry; and, as this arrangement of the text dates about four hundred and forty-six, that the MS. may be of the fifth century. From this surmise he conjectured that its corrections belong to the same age, and that, by means of these, a peculiar text—call it the Alexandrian—was brought into harmony with that of the universal Church. These suppositions are gratuitous and incorrect. The arrangement is not Euthalain; nor if it were, would its age be decided thereby—its upward limit would, indeed, be fixed, but not its downward. Its corrections are made by many distinct hands, the two most important being of a date several centuries after the original writing of the MS.; and the corrections, though often concurrent with the orthodox and received text, more frequently diverge from it. The learned priest, moreover, though duly impressed with the archaic aspect of the document, adopted no measures for transcribing it, or making it available for critical purposes. He knew nothing of the fact that the shepherd of Hermas in Greek was a desideratum of scholars, as well as the earlier part of the epistle of Barnabas, or he would probably have had these, at least, transcribed for the satisfaction of the Christian world. The venerable Archimandrite was evidently more of the amateur than the connoisseur. No man is great in every line. *Non omnes omnia possumus.*

On his return to St. Petersburg, in October, 1859, Tischendorf was graciously received by the Emperor and Empress, who examined *seriatim* the professor's stores. By Alexander's command they were exhibited publicly for a fortnight, and the Sinaitic Codex was ordered to be prepared for the press with the least possible delay. The preservation of such a monument of ancient learning and piety, where such losses had accrued to its contemporary literature, was providential; and in recognition of the divine care, the precious boon should no longer be withheld from the world of letters and religion.

The plan of publication pursued will be to represent the original text by facsimile types, the regularity of the letters greatly favoring this method; but even minute varieties of character will be exhibited also. The alterations by the chief correctors will be given in the margin, together with other peculiarities, such as punctuation, accents, etc., while the less important or most modern alterations will be exhibited in the commentary. Twenty pages of lithographic facsimile, drawn from photographs, will exhibit to the eye of the student an exact picture of the appearance of the original. Approved artists at St. Petersburg will make the drawings; the firm of Giesecke and Deverient, at Leipzig, are to be the printers, and each page, as it issues from the press, will engage the ever-vigilant and active supervision of the learned editor himself. What an acquisition this will be to the Church and the learned world we need not say, and what a monument of the industry, talent, and ingenuity of the German textuary, who publishes a great work like this in the course of a couple of years, leaving nothing to desire on the score of accuracy, cheapness, and accessibility after the painful disappointment we have so

recently experienced in the wretched, unscholarly, and extortionate Vatican imprint of Cardinal Mai.

The three hundred costly facsimile copies the Emperor of Russia will retain himself, for the purpose of gifts to the learned bodies of Europe; but cheap editors, in ordinary type, to be printed with equal accuracy and beauty at the same time, will gratify the curiosity of purchasers and diffuse the information the manuscript contains as wide as the world.

The whole imprint of the Codex will occupy three volumes, of which two will contain the Old Testament and one the New. A supplementary volume will include the facsimile plates, and a lengthened commentary upon all the emendations in the manuscript and its palæography. F. A. Brockhaus, of Leipzig, is to have charge of the ordinary Greek type edition. The whole work is designed to be completed in the middle of 1862—a year memorable in the annals of Russia, as it will be the thousandth year of its existence; and it is desired to associate this great literary achievement with the celebration of the military and social progress of the empire.

THE GREAT EXHIBITION OF 1862.

The Great International Exhibition of 1862 has now passed through the first and earliest stage of its career—that of mere talk—and has entered on the pictorial period. The vast buildings which (D. V.) will occupy a great deal of space next year, not only in the parish of Kensington, but in our own columns, has now been conceived in all its details, and represented on paper. The designs, in other words, have been furnished, and will, in all probability, be very shortly made public. The building differs in many essential particulars from its predecessor. It will be much larger, more commodious, much more imposing in its interior, while from without its aspect will be of almost impressive magnitude and grandeur. Glass and iron are no longer to be the chief features in the design. Externally they appear only to be used where lightness with ornamental effect is needed, and, therefore, when they are introduced with these ends in view, they are managed with good taste and architectural effect, which, viewing the design as a whole, makes it one of the finest and most beautiful of the kind that has probably ever been reared.

The new building will occupy three acres more ground than did that of 1851, twenty-three having been covered at Hyde Park, and twenty-six being required at Kensington. The flooring space in 1851 was just short of a million feet. In the proposed building there will be 1,140,000; but, as it is intended to exhibit machinery and agricultural implements in a wing especially built for the purpose, the space occupied in 1851 by these classes will be at the disposal of the Commissioners for other works, so that practically there will be some 500,000 feet of flooring more in 1862 than in 1851. The greatest height in 1851 was 160 feet, and the main nave running from end to end was 60 feet high by 72 wide. The greatest height of the proposed building will be 260 feet, and the nave will be 1200 feet long by 85 feet wide, and 100 feet high. The total length of the first Exhibition building was 1800 feet by 400 feet wide. The dimensions of the present are to be 1200 feet long by 700 feet broad, exclusive of the space set aside for the display of agricultural implements, which is in rough numbers 1000 feet long by 220 broad. The contractor's price in 1851 was £80,000. Messrs. Kelk and Lucas contract to furnish the edifice in this instance for £200,000, though in reality it will cost £300,000, but the payment of the extra £100,000 is conditional on the gross profits exceeding £500,000, as they did in 1851. Messrs. Kelk and Lucas, therefore, in fact, guarantee the success of the great display

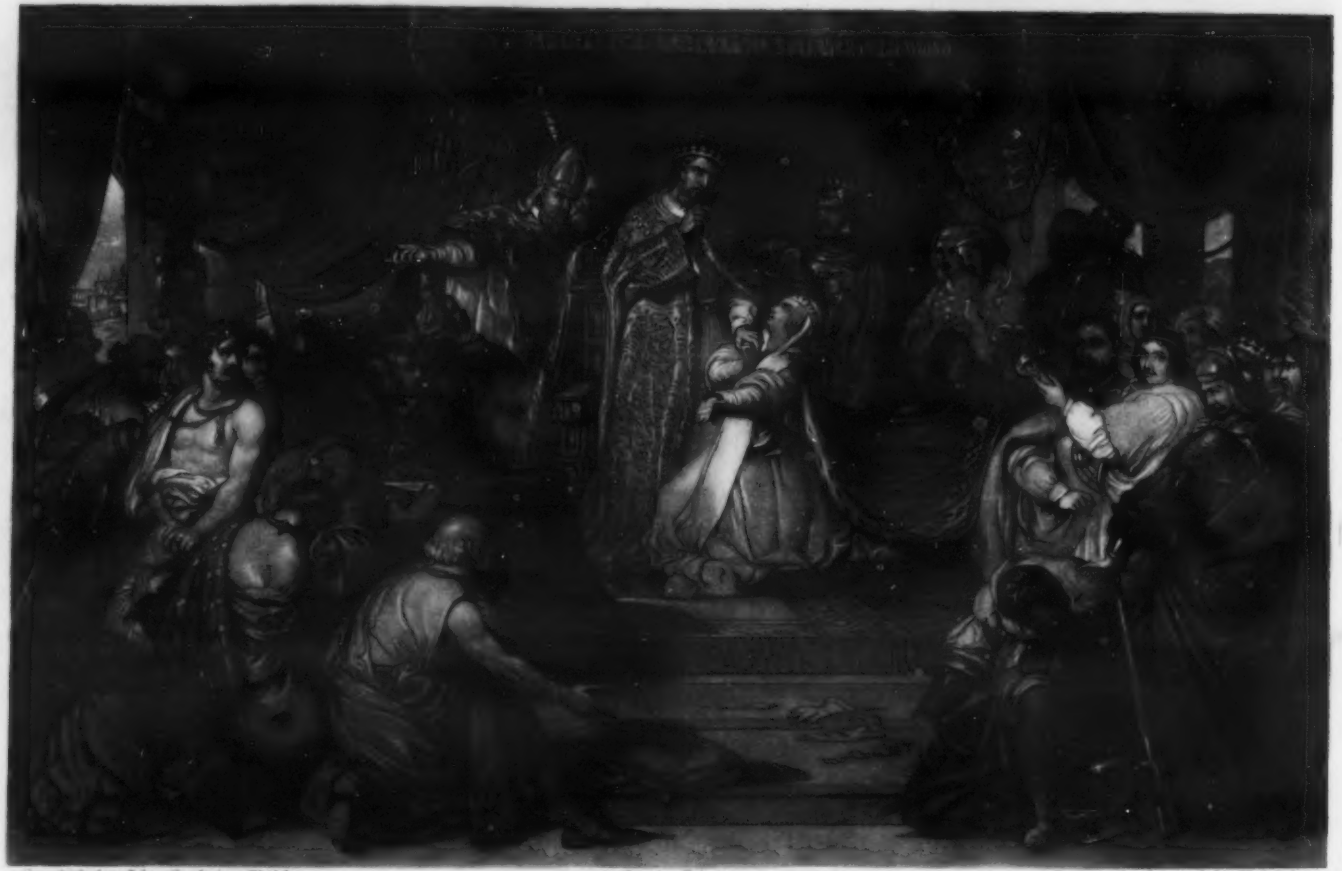
to the extent of £100,000, and though, in all human probability, they do not risk a shilling of this large sum, it is nevertheless a most liberal stake on the success of the enterprise. The buildings will be erected at Kensington, in front of the new grounds of the Horticultural Society, which they will inclose. One side of the edifice abuts upon the Cromwell road, the main entrance on the Exhibition road, and the third side on Prince Albert road; the fourth or rear side faces immediately upon the grounds of the Horticultural Society. Externally the building will be, as we have said, 1200 feet by 700, though the ground-plan shows that in some parts the width is diminished to 500 feet. The average height will be 100 feet, nearly 60 of which will be solid brick-work. Taking one of the main sides of the building, on Exhibition road, as an example, it will present a lofty recessed façade, from the center of which will rise a superb dome of glass and iron to the immense height of 250 feet, with the base of the dome of no less than 160 feet diameter. These, for there are to be two, one at each end of the building, will be the largest domes ever built. That of St. Paul's is only 108 feet in diameter at the base, and even St. Peter's is only 139. These domes are to be reared over the intersection of the nave and transepts at right angles, and, as the floors beneath both will be elevated above the level of the floors of the rest of the building, an unequaled view will be got from here through almost every part of the vast interior. One magnificent nave will be continued from this entrance in the Exhibition road to the extreme end of the building in the grounds of the Horticultural Society, and at the termination of this the second dome will rise. The nave is, therefore, to be 1200 feet long by 85 wide and 100 high. The transepts, in which it terminates at either end, will be each 700 feet long by 85 broad and 100 high. All the roofs will be of wood coated with felt, and meeting in the center at an angle, like the roof of Westminster Hall and most of our old cathedrals. The effect, however, from the interior, will not be that of an angular roof, as the girders will be arched and colored, and on these the eye will naturally rest.

The method of lighting the interior is one of the best that could be devised. In the building of 1851 all the screens that could be made were insufficient to keep down the glare of the sun, while on wet days all the care of the plumbers could not prevent the rain from dripping in. The wooden painted roof does away at once with the chances of rain in the proposed edifice, and the new method of lighting will have equal advantages. On the side walls, beneath the roofs of all the naves and transepts, will be a clere-story 25 feet high, of glass and iron, which, with the light from the domes, the glass and iron entrances, and the windows in the walls, will make the light as equal as it was throughout the building in 1851; while, from the fact of this one being erected due east and west, the glare of the sun is obviated.

The guarantee fund now amounts to nearly £300,000, and it is anticipated that it will extend to a much larger sum in the course of a week or two. One fact sufficiently illustrates the progress made by this country since the Exhibition of 1851. In that year the railways to London were only equal to bringing and taking away 42,000 persons daily; now 140,000 travelers could be brought to the metropolis by rail, and the same number taken back each day.

HOME COURTESIES.—A correspondent gives us this experience: "I am one of those whose lot in life has been to go out into an unfriendly world at an early age; and of nearly twenty families in which I made my home in the course of about nine years, there were only three or four that could be properly designated as happy families, and the source of trouble was not so much the lack of love as lack of care to manifest it." What a world of misery is suggested by this brief remark! Not over three or four happy homes in twenty, and the cause so manifest, and so easily remedied! Ah, in the "small, sweet courtesies of life," what power resides! In a look, a word, a tone, how much of happiness or disquietude may be communicated. Think of it, reader, and take the lesson *home* with you.

JONES was riding through Sydenham, and saw a board with "This Cottage for Sail" painted on it. Always ready for a pleasant joke, and seeing a woman in front of the house, he stopped and asked her, very politely, when the cottage was to sail? "Just as soon as the man comes who can raise the wind," was her quick reply.



Engraved by John Sartain, Phila. *for the Eclectic* *the Original by H. C. Selous*

QUEEN PHILIPPA, INTERCEDING FOR THE LIVES OF THE BURGESSES OF CALAIS, 1347.

QUEEN PHILIPA AND THE BURGESSES OF CALAIS.

The beautiful engraving at the head of the present number of the Eclectic, illustrates a memorable event in history. The date of the occurrence was 1346–47. The scene, the personages, and the occasion are full of historic interest. The scene was the city of Calais, in France. Of the personages, one was an angry monarch incensed against a city of rebellious subjects; another was his beautiful and heroic queen on her bended knees, pleading for the lives of offending men; the others were six brave and heroic nobles, who had volunteered to offer their lives to appease the anger of a wrathful sovereign. The occasion was the surrender of a city whose inhabitants were perishing with famine. The feelings developed on the occasion, and the facts recorded by the pen of the historian, present strongly-marked traits of human character. The engraving, to which the artistic skill of Mr. Sartain has imparted such life-like lineaments, will attract the admiring eye of our readers, and give a renewed and fresh impression of the original scene to the mind, from which the facts may have faded. Repeated visits to that famed city have impressed the scene vividly upon our own mind. We gather up from historic pages the main facts, and construct a brief outline sketch by way of explanation to our readers, as they gaze upon the engraving, and impart additional interest to this artistic embellishment of the Eclectic.

At this date, 1346–47, Edward III., King of England, had besieged Calais with a powerful army, to reëstablish his authority over this revolted city. The brave men and inhabitants made a stout resistance, and the siege had been prolonged almost an entire year. Philip, learning the desperate condition of the city, attempted to relieve it. He marched a powerful army of some two hundred thousand men, according to the historian of the times; but found Edward and his army so strongly entrenched and defended by morasses, that he found it impracticable to attempt a battle. He contented himself with sending Edward a challenge to personal and single combat. In the meantime, David of Scotland had invaded England, entered Northumberland with an army of fifty thousand men, and carried his ravages and devastations to the gates of Durham. But Queen Philipa, whom Edward, her husband, had left behind to attend to the affairs of England in his absence at the siege of Calais, assembled a little army of about twelve thousand men, which she entrusted to the command of Lord Percy; ventured to approach him at Nevill's Cross, near that city; and riding through the ranks of her army, exhorted every man to do his duty, and to take revenge on the invaders. Nor could Queen Philipa be persuaded to leave the field till the armies were on the point of beginning the battle. The army of the Scots was greatly superior in numbers, but nevertheless was utterly defeated and routed. They were broken and chased off the field. Fifteen thousand were slain; among whom was the Earl Marshal, Edward Keith, and Sir Thomas Charteris, Chancellor of Scotland; and the king himself was taken prisoner, and many other noblemen. Queen Philipa having secured her royal prisoner in the Tower, crossed the sea at Dover, and was received in the English camp before Calais with all the triumph due to her rank, her merit, and her success. This age was the reign of chivalry and gallantry. The court of Edward excelled in these accomplishments. The appearance of this extraordinary woman in the English camp before Calais called forth the most obsequious devotion to this heroic queen. It is these facts and occurrences, among others, which impart additional interest and charm to the scene presented in the engraving.

It was at this juncture, and soon after the arrival of Philipa, that John of Vienne, governor of Calais, saw the necessity of surrendering his fortress, which was reduced to the last extremity by famine and the fatigue of the inhabitants. He appeared on the walls, and made a signal to the English sentinels that he desired a parley. Sir Walter Manny was sent to him by Edward. "Brave knight," cried the governor, "I have been intrusted by

my sovereign with the command of this town. It is almost a year since you besieged me; and I have endeavored, as well as those under me, to do my duty. But you are acquainted with our present condition. We have no hopes of relief; we are perishing with hunger. I am willing, therefore to surrender, and desire, as the sole condition, to insure the lives and liberties of these brave men, who have so long shared with me every danger and fatigue."

Manny replied, that he was well acquainted with the intentions of the king of England; that that prince was incensed against the townsmen of Calais for their pertinacious resistance, and for the evils which they had made him and his subjects suffer; that he was determined to take exemplary vengeance on them; and would not receive the town on any condition which should confine him in the punishment of these offenders. "Consider," replied Vienne, "that this is not the treatment to which brave men are entitled. If any English knight had been in my situation, your king would have expected the same conduct from him. The inhabitants of Calais have done for their sovereign what merits the esteem of every prince; much more of so gallant a prince as Edward. But, I inform you that, if we must perish, we shall not perish unrevenged; and that we are not so reduced but we can sell our lives at a high price to the victors. It is the interest of both sides to prevent these desperate extremities; and I expect that you yourself, brave knight, will interpose your good offices with your prince on our behalf."

Manny was struck with the justness of these sentiments, and represented to the king the danger of reprisals, if he should give such treatment to the inhabitants of Calais. Edward was at last persuaded to mitigate the rigor of the conditions demanded; he only insisted that six of the most considerable citizens should be sent to him to be disposed of as he thought proper; that they should come to his camp carrying the keys of the city in their hands, bare-headed and bare-footed, with ropes about their necks; and on these conditions he promised to spare the lives of the remainder.

When this intelligence was conveyed to Calais, it struck the inhabitants with new consternation. To sacrifice six of their fellow-citizens to certain destruction for signalizing their valor in a common cause, appeared to them even more severe than that general punishment with which they were before threatened; and they found themselves incapable of coming to any resolution in so cruel and distressful a situation. At last one of the principal inhabitants, called Eustace de St. Pierre, whose name deserves to be recorded, stepped forth, and declared himself willing to encounter death for the safety of his friends and companions. Another, animated by his example, made a like generous offer; and a third and a fourth presented themselves to the same fate, and the whole number was soon completed. These six heroic burgesses appeared before Edward in the guise of malefactors, laid at his feet the keys of their city, and were ordered to be led to execution. It is surprising that so generous a prince should ever have entertained such a barbarous purpose against such men; and still more that he should seriously persist in the resolution of executing it. But the entreaties of his queen saved his memory from that infamy. She threw herself on her knees before him, (see the engraving,) and, with tears in her eyes, begged the lives of these citizens. Having obtained her request, she led them into her tent, ordered a repast to be set before them, and, after making them a present of money and clothes, dismissed them in safety. Noble woman! Illustrious queen! worthy of undying remembrance on the pages of fame! We have desired to perpetuate her name and the glory of her deed of rich benevolence, in our humble measure, by illustrating it on the plate and the record of it on our pages. We only add that Edward took possession of Calais, and ordered all the inhabitants to evacuate the city, which he re-peopled with English, in place of French, whom the king knew regarded him as their mortal enemy.

From Steffen's German Almanac for 1861.

FORGET NOT THE BEST THING.

There was once a poor woman, and she had no dearer wish than once, by accident or a miracle, to obtain a great deal of money, because she believed, that if she only had money, all sorrow and suffering would be as good as gone. The accident and the miracle did not happen for a long time, however, till the woman one day heard that on the slope of a hill there grew among other grass a weed, and if any one were so fortunate as to pluck it, the mountain would open, the plucker would walk into a large cave, at which seven men sat round a table, who would allow her to take away as much of their treasure as she could carry. From this moment the poor woman had nothing more pressing to do than to fetch hill-grass daily during the summer for her cow, because she hoped to pluck the miraculous weed among it. And so she did; one day the woman had again collected grass, carried the heavy basket on her head, and led her little daughter by the hand, when a large rock opened noiselessly before her like a well-oiled door, and allowed her to see into a cave, where seven old men with long beards were sitting at a table, and piles of gold and silver were heaped around them. The woman naturally took advantage of the opportunity, emptied her basket upon the ground and filled it with gold. When this was done, and she was going out again, one of the old men certainly said, "Woman, forget not the best thing!" but she did not listen, and went off. But she had scarce reached the entrance of the cave when the rock closed again, and shut in the woman's little daughter, who had remained behind playing with the gold. Then, the mother's grief and agony were great; she ran lamenting to the clergyman, and told him what had occurred. The latter said she must wait other seven years, till she could find her daughter again; after that period she must go again to the mountain at the same hour in which she lost the child, and wait for what might happen; but she had made a grand mistake in quite emptying her basket for the sake of her gold, because the miracle weed was among the grass she threw away. Now she remembered the old man's words, and learned to her sorrow that she had done wrong to consider wealth as the highest blessing. How slightly she now valued the gold she brought home, when she had to pay for it by the loss of her child! She thought further, and found that there were many blessings in the world which, if lost, reduce the value of gold to nothing—yes, even make it appear in an odious shape. He who gives for gold and property the loss of a dear child, beloved parents, his fatherland, a good conscience, his honor, etc., could not say that he has gained, for he has really and truly lost. This, and many other things, the poor rich woman had ample time to reflect on during the seven years, and, to her honor be it said, that, till the expiration of that time, she would not look at or handle the gold. At length the day came on which she hoped to find her child again. The woman hurried to the hill in the neighborhood of the rock where her child was shut up; and see there! from a distance she perceived the treasure of her heart, her child, sleeping in front of the rock; it was as young and blooming as when she lost it. She lifted it tenderly, and kissed it a thousand times with tears on the road home, thinking, "If all the gold were out of my room I should be as happy as if I had found all the treasures in the world!" But the gold was not gone; and so she was grateful for that, and enjoyed the advantages of wealth, and spent much on the good education of her daughter, and thus the well-trained maiden became a great and invaluable treasure.

An interesting story in the same almanac is called the "Tailor of Stuttgardt," the hero being Götz von Berlichingen, him of the iron hand, who bears the same reputation in Germany as Robin Hood among us, for being the real friend of the

poor. We can hardly think, however, that the perusal of deeds of violence, even though performed with a good intention, is the healthiest reading for peasants, and it would have been better, perhaps, to lay greater stress on the fate of Götz of the Iron Hand as a warning. In other respects, the story is amusing: The tailor of Stuttgardt, desirous of winning the hand of his beloved, proceeds to Cologne to shoot at an archery match. Of course he wins the prize, but the town council manage to defraud him of it. Returning home in melancholy mood, he meets Von Berlichingen, to whom he confides his wrongs, and the knight captures a Cologne merchant, whom he keeps prisoner until the lawfully won money is paid over. The following extract will show how matters are finally settled between the imperial city and the terrible knight:

"A fortnight after the events we have just described, a stately procession marched along the Zeil in Frankfort-on-the-Maine, past the Römer, towards the town-house. On the right rode the Count of Königstein, then came to Sebastian Heuser, the citizen bailiff, and by his side Götz von Berlichingen, who looked cheerfully right and left, and nodded kindly, as the spectators uncovered their heads on his passage, and shouted, 'Long live our Götz, the friends of citizens and peasants! Long live Götz with the iron hand, the glory of German chivalry! May Heaven preserve him long to us!' At length the procession reached the town-house, and the two counts, the bailiff, and the archer ascended the steps, and stood a few minutes later before the assembled council of Frankfort, with the first burgomaster at their head, who gave them a kindly welcome.

"'Highly honored lords and friends,' the burgomaster began, 'as the city of Cologne has appointed us the arbiters in its dispute with the noble and highly renowned knight Götz von Berlichingen of Hornburg, let us complete this honorable duty in love and friendship. As concerns you, Herr Sebastian Heuser, we request you once again to make before the assembled council of this city the declaration that you will give up any compensation and satisfaction you believe you have a right to claim from the most honorable Götz von Berlichingen.'"

This incident is historical, and is referred to by Von Berlichingen in his autobiography. We have given the excerpt, because it throws a curious light on the manners and customs of the age, when a knight and a city could stand on terms of war, and required the interpellation of so powerful a city as Frankfort to settle the dispute.

JOHN SARTAIN AND HIS PORTRAIT.

The name of this eminent artist has long been familiar to the readers of the Eclectic, and to all the lovers of beautiful art engraving in our land. He is *primus inter pares* in the line of his profession, so far as our observations extend. In the great family of artists in his department of engraving, he is second to none in native genius or acquired skill. For many years Mr. Sartain has been most industriously engaged in the production of human portraits, embracing a very large number of personages more or less distinguished in name, position, and character, in public life, in the state, in the senate, on the bench, in the pulpit, and in the literary walks of life. We believe he has engraved more portraits than any other man living or dead, and with long acquaintance in this direction we know of no one who can stamp the human face in accurate and indelible lineaments on a plate of steel with such surprising celerity as this accomplished artist. During the past fifteen years, and more, nearly every monthly number of the Eclectic has gone out to its patrons embellished with beautiful portraits or historic engravings from his hand. Mr. Sartain is a self-taught artist, engraver, and painter. Had he devoted his genius and talents to painting he doubtless would have become as emi-

On steel for the Eclectic after an Ambrotype by Henry Sartain, Phila.

John Sartain

nent as a painter, as he is an engraver. He first introduced the art of mezzotint engraving into this country, and great improvements have since been made by his skill in the facilities with which any desired portrait or historic scene can be impressed into the face of the steel plate. In a future number we hope to give a brief history of this curious and wonderful mezzotint art. During the past fifteen years we have been in the habit of tasking Mr. Sartain to produce monthly, some desired portrait to embellish this magazine. In compliance with this request, a large number of personages of renown on the great theater of life have come into view in the form of their portraits. Like some artistic enchanter, Mr. Sartain has moved his wand, and emperors and empresses, kings and queens, dukes and lords, warriors and heroes, historians and poets, statesmen and diplomatists, and persons of varied distinction, have been made to show their faces and look up from the cold, hard, and adamantine steel plate with almost life-like accuracy and expression. They have been made to appear at the will of the artist with characteristic urbanity on his part in imperial paraphernalia, or royal vestments, wearing crowns, stars, or other insignia of high birth or illustrious position, in accordance with their character and station in the sight of the world. Living, or long since dead, or dwelling in far-off lands, they come at the artist's bidding, all unconscious of the process, and assume a fixed and steady look before the gaze of the present and coming generations. They grow not old. No care-worn lineaments, no wrinkle of age, no pallor of decay engraves its tracery on the face. If this language is strongly figurative, it is still the part and the province of the real artist of genius and talent to achieve it. Such artists are comparatively few in number. Such, however, is the eminent artist whose fine and almost speaking portrait we solicited, and have obtained, with his modest consent to show his face in our present number, to all our patrons who have so long admired the beautiful portraits which his hand has engraved to embellish our journal. We commend him to their generous hospitality and good will when he shows his face in their family circles. We ask a kind scrutiny and a look into those bright, artistic eyes, which we have discovered can penetrate as far into a steel plate as any eyes we know of, and can impart to that hard, smooth surface as amiable, and natural-speaking, and life-like expression as could be expected from any piece of metal whatever.

As Mr. Sartain has his home in Philadelphia, we hardly need to add that we have penned this hasty and imperfect sketch of our friend without his knowledge, as a small tribute justly due to his artistic talent and skill, and to his personal worth, as he is regarded by all who know him. We are quite sure that the patrons of the ECLECTIC, and the admirers of the portrait engravings from the hand of Mr. Sartain, will coincide with all we have said, and more, also, in commendation of one who has done so much to give pleasure by the contemplation of the works of art.

THE FIFTY-FIVE EXILED BOURBONS.—Now that King Francis and his family have quitted Naples, there are in exile not fewer than fifty-five members of the Bourbon family out of the seventy-four who are the direct or collateral descendants of Louis XIV. The fifty-five are these: The Bourbons of Naples, consisting of King Francis, five brothers, and four sisters; his majesty's uncles—Prince de Capua and two children, Count d'Aquila and two children, Count de Trapani and five; his majesty's aunts—Queen Marie Amélie, widow of King Louis Philippe; the Duchess de Berry, and the Duchess de Salerno; and, lastly, a cousin-german, the Duchess d'Aumale—total, 26. The Bourbons of Spain—the Infante Don Juan and two children—total, 3. The Bourbons of France — Count de Chambord, the Duchess de Parma and four children—total, 6. The Orleans branch of the French Bourbons—the Count de Paris, the Duke de Chartres, the Duke de Nemours and four children, the Prince de Joinville and two, the Duke d'Aumale and two, the Duke de Montpensier and six—total, 20. Nineteen Bourbons are not in exile, namely, the royal family of Spain, sixteen in number; the Empress of Brazil (*née* Princess of Naples;) the Duchess Augustus of Saxe-Coburg Gotha (*née* Princesse d'Orleans;) and the Duke Charles III. of Parma, Infante of Spain, who abdicated.

A BEAUTIFUL thought is suggested in the Koran: "Angels, in the grave, will not question thee as to the amount of wealth thou hast left behind thee, but what good deed thou hast done in the world, to entitle thee to a seat among the blessed."

LITERARY MISCELLANIES.

THE LIFE AND CAREER OF MAJOR JOHN ANDRE, ADJUTANT-GENERAL OF THE BRITISH ARMY IN AMERICA. By WINTHROP SARGENT. Boston: Ticknor & Fields. 1861. Pp. 471.

THE author has performed a valuable and acceptable service by his careful researches and investigations into the more minute life, career, and history of this accomplished, renowned, but most unfortunate British officer. As no revolutions of time will efface the events and reminiscences of the American Revolution, so will the name of Major Andre never perish from among its sad and touching annals. The volume comprises twenty-two chapters of the personal history of its subject, and of concurrent events, as connected with his career. To this an appendix follows concerning Benedict Arnold, the captors of Major Andre, and his execution.

The volume is embellished with a fine portrait on steel of the youthful Andre, which adds interest to the work.

In some respects this volume might be entitled a romance of history, or romance of biography, or both combined. It glances at his parentage, birth, and early life—his courtship and letters to Miss Seward—the failure of Andre's courtship, after which he joins the army, visits Germany, and then comes to America. His career in this country, the incidents of his short but eventful life amid the stirring scenes and dangers of the war of the Revolution—his capture, imprisonment, and execution under the terrible but just severity of martial law, will be of touching interest to the American reader. We commend the neatly executed volume to all who find pleasure and profit in revisiting the scenes of the great struggle of independence, even on the historic page.

TWELVE SERMONS; Delivered at Antioch College. By HORACE MANN. Boston: Ticknor & Fields. 1861.

WE learn from the editor's preface that these twelve sermons were written and delivered while Mr. Mann was President of Antioch College, to which the editor added the meditations which were found in the manuscripts, and which are supposed to have formed the basis of the prayers accompanying the sermons.

BROWN & TAGGARD sends us Vol. XV. of their beautiful edition of the works of LORD FRANCIS BACON, just published, being Vol. V. of the Literary and Professional Works. Boston: Brown & Taggard. 1861. Pp. 449.

The works of Lord Bacon have long been celebrated for their profound learning, ability, and literary wealth. Here the scholar, the student of history, the man of learning may refresh and strengthen his mind with vigorous aliment, and find food for reflection and mature thought. We have noticed and commended the previous volumes as they have successively appeared from the press of the enterprising publishers. To scholars and men of learning it is quite sufficient, simply to announce the publication of this fine edition of Bacon's Works.

It is worthy of note that the public taste of men of letters calls for the republication of such works, and such a class of philosophic literature as is found in these successive volumes. We trust they will enrich many a public and private library.

H. DEXTER & Co. send us their published volume, entitled A LOOK AT HOME; OR, LIFE IN THE POOR-HOUSE OF NEW-ENGLAND, with a series of circumstances and persons, such as to form one connected Tale in the Annals of the Poor—the Paupers of New-England. By S. H. ELLIOTT, author of *Rolling Ridge*, etc. New and revised edition. New-York: H. Dexter & Co., 113 Nassau-street; New-Haven, Conn.: S. H. Elliott, 105 Chapel-street.

The author of this volume is a man of worth, and integrity, and a pleasing writer of narrative incidents such as are recorded in this production of his pen. Human life amid its humble aspects, however varied, is often instructive and full of sanitary lessons, however uninviting the life-like reality may be.

ONE DROP AT A TIME.—Have you ever watched an icicle as it formed? You noticed how it froze one drop at a time until it was a foot long or more. If the water was clean, the icicle remained clear, and sparkled brightly in the sun; but if the water was but slightly muddy, the icicle looked foul, and its beauty was spoiled. Just so our characters are forming. One little thought or feeling at a time adds its influence. If every thought be pure and right, the soul will be lovely, and will sparkle with happiness; but if impure and wrong, there will be final deformity and wretchedness.

ANIMALS KILLED BY THE COLD.—Visitors to the Zoölogical Gardens, young and old, will be sorry to hear that the inclement weather, which has swelled the weekly bills of mortality, has been very fatal to our pets in the Zoölogical Gardens. The noble Nubian lion, who had been twelve years in the gardens, and was the admiration of all visitors, is dead. In the afternoon he was apparently well, and in the morning he was found by the keeper lying stiff and cold in his den. A *post mortem* examination disclosed the sad fact that the king of beasts had succumbed to the intense cold, no organic disease having been discovered.—*London Paper.*

A BEAUTIFUL EASTERN BELIEF.—Two angels keep watch upon each mortal—the angel on the right and the recording angel on the left—taking note of every word and action. At the close of each day they fly up to heaven with a written report, and are replaced by two similar ones on the following day. According to Eastern tradition, every good action is recorded ten times by the angel on the right; and if the mortal commit a sin, the same benevolent spirit says to the angel on the left: "Forbear for seven hours to record it; peradventure he may repent and pray, and obtain forgiveness."

I HAVE thought that wild flowers might be the alphabet of angels—whereby they write on hills and fields mysterious truths.—*Francis.*

Pilgrimage of the Empress of the French to Jerusalem.—We have good reason to believe that a part, at least, of the object of Admiral La Ronciére le Norrey's late visit to Constantinople had reference to the for-some-time intended pilgrimage of the Empress of the French to Jerusalem. The official rumor now is that her intention is to be carried into effect before the French troops leave Syria. As the Imperial voyage, however, can not be made till at least the end of March, this fact is put forward as one reason for stretching the term fixed for General Beaufort's departure by the Convention. On the other hand, our information is that the Porte disposes of this insinuated necessity by the amplest offers of escort and munificent care of her majesty during her stay in his territory. It is said that the Empress intends to commemorate her visit to the Holy Places by the foundation either of a hospital or a church worthy of Imperial France, and, in fact, to make a "progress" whose effects shall be at once striking and durable. She will, it is said, replace the diamond star stolen, according to Consul Botta, by the orthodox Greeks from the Cave of the Nativity at Bethlehem, by another of greatly superior value, and make also most costly additions to the decorations of the Holy Sepulcher itself. Monsignore Brunoni, the Constantinople vicar apostolic, M. Boré, chief of the Lazarists, and the Bulgarian unionist archimandrite, Macarios, are, it is said, to meet her majesty at Jaffa, to tender to her the felicitations of the Latin clergy.

The Roll of the Lords.—The roll of the lords, spiritual and temporal, has just been printed. There are 30 spiritual lords and 427 temporal, reckoning Lord Auckland among the former as Bishop of Bath and Wells. The spiritual lords are 26 English prelates and four Irish, the Irish prelates on the roll this session being the Archbishop of Dublin and the Bishops of Down, Ossory, and Cork. Of the temporal lords three are of the blood royal—the Prince of Wales, the Duke of Cumberland, (King of Hanover,) and the Duke of Cambridge. There follow 20 dukes, 22 marquises, 131 earls, 28 viscounts, and 223 barons. This, however, is reckoning them technically, according to the titles by which they sit in the House. For instance, the Duke of Buccleuch is placed among the earls because he sits, not by his Scotch title, but as Earl of Doncaster in the English peerage, and the Duke of Argyll is reckoned only among the barons (Baron Sundridge;) the Earl of Roden is Lord Clanbrassill, the Marquis of Clanricarde, Lord Somerhill; Lord Panmure also remains among the barons, his newly-inherited Scotch title of Earl of Dalhousie having no seat in the house annexed to it. Assigning all such peers to the rank and title by which they are commonly known, and speaking popularly, the temporal lords are—a prince, a king, 27 dukes, 35 marquises, 170 earls, 31 viscounts, and 162 barons. The whole number in the House, therefore, is 459; a generation ago it was not 400.

Lady Isabella Finch, daughter of the Earl of Winchelsea, was lady of the bed-chamber to the Princess Amelia. Lord Bath, one evening, having no silver, borrowed a half-crown of her; he sent it next day, with a very gallant wish that he could give her a crown. She replied, that "though he could not give her a crown, he could give her a coronet, and she was very ready to accept it."

The Prince of Wales in the Hunting Field.—The Prince of Wales joined the field of the Cambridgeshire Hunt on Monday, attended by his equerry, Captain Grey. The meet was at Childerley, in the vicinity of Madingley, and in consequence of a rumor having got abroad that the prince was likely to be present, the field was a very numerous one. The lord lieutenant (the Earl of Hardwicke) and his son were present, and the university supplied a goodly quota of attendants. A find was made at Honey Hill. Reynard made straight for Madingley, but turned at the pleasure ground, and went back through Drayton to Knapwell Grove and thence to Boxworth. Here the hunted fox was left in some farm buildings, the hounds getting on the line of a fresh one, which, however, had been gone some time, and went by a circuitous course towards Childerley, in the neighborhood of which they were called off without a kill. In the fore part of the day the pace was tremendous, considering the heaviness of the country; of both some idea may be formed from the fact that two horses were killed. Altogether it was a very fair day. His royal highness rode well up, and took his fences gallantly and well.

A WORD OF ADVICE.

Denounce Essayists and Reviewers,
Hang, quarter, gag, or shoot them—
Excellent plans—provided that
You first of all refute them.

By all means let the Hangman burn
Their awful book to ashes,
But don't expect to settle thus
Their heterodox hashes.

Some heresies are so ingrained,
E'en burning won't remove them,
A shorter and an easier way
You'll find it—to disprove them.

Be this, right reverends, your revenge,
For souls the best of cure—
Essay Essayists to upset,
And to review Reviewers.

—*English Paper.*

The wind is unseen, but it cools the brow of the fevered one, sweetens the summer atmosphere, and ripples the surface of the lake into silver spangles of beauty. So, goodness of heart, though invisible to the material eye, makes its presence felt; and from its effects upon surrounding things we are assured of its existence.

Lord Oxford was told that Lord Coningsby would have his head. "Sorry I can not return the compliment," says Oxford, "for I would not have his at a gift."

Conversation ought to be mental music, in which diversity of thoughts in the unity of humanity makes harmony for the soul.

To the man of strong will and giant energy, possibilities become probabilities, and probabilities certainties.

What Miss will ruin any man?—Mis-management.

THE HEALTHY CONDITION OF THE YEAR 1860.—The year 1860 will remain on record as one of those which has proved most favorable to the public health. The rate of mortality sensibly diminished throughout Europe, and medical practitioners have had an amount of leisure of which there are few examples. In England the number of deaths has been 20 per cent. below the mean, and in Germany and France the conditions have been no less favorable. For example, at Vienna, but 1077 deaths occurred in August, 1860, while in the same month of 1859, there were 1532 (*i. e.*, 495 in excess) registered. In some of the rural communes of France not a single death took place during the entire year! and in the Paris hospitals there have been numbers of empty beds, the bulk of the patients who were admitted having also been the subjects of chronic affections. This remarkable immunity is well calculated to render us circumspect, and once more to exhibit how little we know concerning atmospheric influences. The year 1860, if we are to be guided by opinions which have their weight in science, united all the conditions which are supposed suited to engender disease. Rainy, unequal in temperature, and without its seasons distinctly marked, it ought, it would seem, to have given rise to the predominance of pulmonary catarrhs and gastro-intestinal affections. If things had so come to pass, and the medical constitution had become markedly affected, excellent reasons would have been at hand for the explanation of the occurrences of epidemics by the meteorological conditions which prevailed. Yet the epidemics have been rare, and the diseases usual to our climate, except mild and uncomplicated diptheria, have been almost entirely absent.—*Medical Times and Gazette.*

HER NAME.

In days, like a bright river's flowing,
That joy and hope only pervade;
When we count happy hours in their going
By sunshine and never by shade:
To my heart in those moments of pleasure,
A light and a beauty it came;
As a talisman, worth a world's treasure,
Her name—
Yes!—the spell was her name.

It called, as a spirit-voice waking,
All life, happy life held in store;
And the land of the sweet future making
A region of joy evermore.
Oh! the wealth of glad promise appearing,
As birds to the spring-voice it came;
And my heart beat to music on hearing
Her name—
Yes!—the spell was her name.

Those days have all passed in their gladness,
But the light lingers still that they gave;
Though it bears in its beauty the sadness
Of sunset o'er woodland and wave
Still to call back those days early beaming,
The power of that word is the same;
When I hearken, or dawns on my dreaming
Her name—
Oh!—the spell is her name.

FREDERICK ENOCH.

THE greatest gluttons are those who feed upon slander; they never get enough.

GIRLS' NEGLECT OF HEALTH.—Little does the child of indulgent parents know what illness is to the poor and destitute; or what it may be to her when her mother's hand is cold and helpless in the tomb, and when her own head is no longer sheltered by a father's roof. Thus we find young girls so often practicing a certain kind of recklessness, and contempt of health, nay, even encouraging a degree of delicacy, feebleness, and liability to bodily ailments, which, if they were not accustomed to the kindest attentions, would be the last calamity they would wish to bring upon themselves. How important is it for such individuals to remember that the constitution of the body, as well as that of the mind, is, in a good degree, of their own forming. Fanciful and ill-disciplined young women are apt to think it gives them an attractive air, and looks like an absence of selfishness, to be indifferent about the preservation of their health; and thus they indulge the most absurd capriciousness with respect to their diet, sometimes refusing altogether to eat at proper times, and eating most improperly at others; running about upon wet grass with thin shoes, as if they really wished to take cold; refusing to take medicine when necessary, or taking it unsanctioned by their parents, or their best advisers. How soon does the stern discipline of life inflict its own punishment for this folly; but, unfortunately, not soon enough to stop the progress of the host of maladies which are thus produced.

THE CHINESE PLUNDER.—It has been estimated, says a correspondent at Pekin, that the amount of property pillaged and destroyed exceeds £6,000,000 sterling. Every soldier who was present is replete with loot. On entering the Emperor's particular residence, no one knew what to take; silver was thrown away to take up gold, and gold to take up jewelled watches and gems; china and enameled vases (the manufacture of which is lost) of priceless value, were broken because too bulky to carry away. Rooms and rooms full of costly silks, bronzes, jadestone ornaments, and the presents received by the Emperors, every article being labeled with the name of the donor, were ruthlessly looted and destroyed. Much more has been buried beneath the ruins, however, than was carried away. The Emperor's washstand, basin, and ewer of gold, studded with stones, were sold for £2,000 by the captor. Lord Amherst's watch was sold by a French soldier for twenty dollars; it was worth £200. Many men have thirty or forty pounds of pure gold in their possession, and others have pearls and precious stones of unknown value.

A MEMORIAL, signed by several thousands of clergymen, was yesterday presented to the Archbishop of Canterbury. In this memorial the views of the writers of *Essays and Reviews* were strongly denounced, and his grace was urged "to take counsel with the other members of the episcopate, and to devise such measures as may, with God's blessing, banish and drive away from our Church all such erroneous and strange doctrines." The archbishop quite concurred in the opinions expressed by the memorialists, but pointed out the extreme difficulty of instituting, with any prospect of success, legal or ecclesiastical proceedings against the essayists. He, however, felt confident that the Church possessed able ministers who would not permit the "very frivolous and answerable *Essays and Reviews*" to pass without reply.

AFGHANISTAN AND THE LOST TRIBES.—The mountains of the Indian Caucasus, the mountains of Cabul are said to be visible, in clear weather, from a distance of two hundred and fifty miles; lifting their hoar heads sublimely into the clear calm heavens, they will represent "the terrible crystal" of the prophet. Roving myriads of people have been attracted by this sight, as if to travel onwards and upwards, in imagination, along the mountain pathway, to the realms of glory and of rest. The traditions of the whole world celebrate these stupendous heights, many of whose light-crowned pinnacles are supposed to stand more than twenty thousand feet above the common level of this earth. Their magnificence and their mystery have drawn nations together in adoring wonder into the hills and valleys so fruitful, and bounteous, and beautiful, around their feet. This region might well be thought the seat of Paradise. There are found specimens of nearly every form of living thing, whether animal or vegetable, elsewhere found in any country of Europe or of Asia; and there, too, almost every civilized nation has its representative. The oldest nations believe that thence mankind first sprang into existence, and that God even now there sits enthroned, waiting to judge all the human souls which he has made. Greeks, Romans, Hebrews, Persians, the followers of Buddha, of Brahma, of Mahomet, and even believers in Jehovah, have looked up unto these awful solitudes, and bowed in soul before their majesty, thinking of God. Here was a high place (Bamah) for the worshipers of Bamah worthy of the name, and here the wandering tribes might believe themselves in the especial presence of him who made the heavens and the earth. To the skirts of these mountain fastnesses many of the outcast Israelites undoubtedly resorted after their escape from Assyrian or Persian domination, and after their wanderings in the north. Traces of their former possession of this neighborhood, as well as of Bactria and Bokhara, are still extant, not only in existing monuments, but also in the traditions of the power and majesty of a national religion and polity once capable of awakening the attention of all the East, but now lost in the mist of ages.—*Dr. Moore's "The Lost Tribes."*

LADY PHYSICIANS.—As regards the instruction of young women in physiology, I venture to suggest, for the consideration of those ladies who have gone through a systematic course of medical education, with the view to qualify themselves as medical practitioners, whether devoting their time to the instruction of their own sex in the laws of health would not form an equally useful and a more appropriate profession than that of a physician or surgeon. In adopting as their sphere of action the hygiene of female and infantile life, ladies would be in their right social position; and assuredly they could have no higher vocation than that of teaching their own sex the important duties which devolve on them as mothers—how to manage their own health and that of their offspring. If ladies, properly educated for such duty—they need not be fully educated physicians—would devote their time and energies to this noble work, they would confer an inestimable benefit on the rising generation, and merit the lasting gratitude of posterity.—*Sir James Clarke.*

THE government expenditures of Great Britain are £215,000, more than a million of dollars, per day. The people consume seven hundred thousand dollars of food per day, more than their own soil produces.

ROCK ME TO SLEEP.

BY FLORENCE PERCY.

BACKWARD, turn backward, O Time, in your flight,
Make me a child again just for to-night!
Mother, come back from the echoless shore,
Take me again to your heart as of yore;
Kiss from my forehead the furrows of care,
Smooth the few silver threads out of my hair,
Over my slumbers your loving watch keep;
Rock me to sleep, mother, rock me to sleep!

Backward, flow backward, O tide of years!
I am so weary of toils and of tears—
Toil without recompense, tears all in vain—
Take them and give me my childhood again!
I have grown weary of dust and decay,
Weary of flinging my soul-wealth away,
Weary of sowing for others to reap;
Rock me to sleep, mother, rock me to sleep!

Tired of the hollow, the base, the untrue,
Mother, O mother, my heart calls for you!
Many a summer the grass has grown green,
Blossomed and faded, our faces between,
Yet with strong yearning and passionate pain,
Long I to-night for your presence again;
Come from the silence so long and so deep;
Rock me to sleep, mother, rock me to sleep!

Over my heart, in days that are flown,
No love like mother-love ever was shown;
No other worship abides and endures,
Faithful, unselfish, and patient, like yours.
None like a mother can charm away pain
From the sick soul and the world-weary brain;
Slumber's soft calm o'er my heavy lids creep,
Rock me to sleep, mother, rock me to sleep!

Come, let your brown hair, just lighted with gold,
Fall on your shoulders again, as of old;
Let it fall over my forehead to-night,
Shading my faint eyes away from the light.
For with its sunny-edged shadows once more,
Haply will throng the sweet visions of yore:
Lovingly, softly, its bright billows sweep!
Rock me to sleep, mother, rock me to sleep!

Mother, dear mother! the years have been long
Since I last hushed to your lullaby song;
Since then, and unto my soul it shall seem,
Womanhood's years have been but a dream.
Clasped to your arms in a loving embrace,
With your light lashes just sweeping my face,
Never hereafter to wake or to weep,
Rock me to sleep, mother, rock me to sleep!

HOW TO LIVE.—To act with common sense, according to the moment, is the best wisdom I know; and the best philosophy, to do one's duties, take the world as it comes, submit respectfully to one's lot, bless the goodness that has given us so much happiness with it, whatever it is, and despise affectation.

LORD BYRON.—One morning a party came into the public rooms at Buxton, somewhat later than usual, and requested some tongue. They were told that Lord Byron had eaten it all. "I am very angry with his lordship," said a lady, loud enough for him to hear the observation. "I am very sorry for it, madam," retorted Byron, "but before I ate the tongue, I was assured *you* did not want it."

Our Homes should be Beautiful.—Not only should we cultivate such tempers as serve to render the intercourse of home amiable and affectionate, but we should strive to adorn it with those charms which good sense and refinement so easily impart to it. We say easily, for there are persons who think that a home can not be beautiful without a considerable outlay of money. Such people are in error. It costs little to have a neat flower-garden, and to surround your dwelling with those simple beauties which delight the eye far more than expensive objects. Nature delights in beauty. She loves to brighten the landscape and make it agreeable to the eye. She hangs ivy around the ruin, and over a stump of the withered tree twines the graceful vine. A thousand arts she practices to animate the sense and please the mind. Follow her example, and do for yourself what she is always laboring to do for you.

The Moral Standard.—To wrestle vigorously and successfully with any vicious habit, we must not merely be satisfied with contending on the low ground of worldly prudence, though that is of use, but take stand upon a higher moral elevation. Mechanical aids, such as pledges, may be of service to some, but the great thing is to set up a high standard of thinking and acting, and endeavor to strengthen and purify the principles, as well as to reform the habits. For this purpose a youth must study himself, watch his steps, and compare his thoughts and acts with this rule. The more knowledge of himself he gains, the humbler will he be, and perhaps the less confident in his own strength. But the discipline will be found most valuable which is acquired by resisting small present gratifications to secure a prospective greater and higher one.

Questions and Answers.—"First class in Oriental philosophy stand up. Thibets, what is life?"—"Life consists of money, a horse, and a fashionable wife."—"What is poverty?"—"The reward of merit which genius generally receives from a discriminating public."—"What is religion?"—"Doing unto others as you please, without allowing a return of the compliment."—"What is fame?"—"A six-line puff in a newspaper while living, and your fortune to your enemies when you are dead."

England is spending £70,000,000; the French government confesses to an expenditure of approaching £75,000,000; the Russian government acknowledges that its liabilities amount annually to £55,000,000 (or, in Russian coinage, 275,000,000 rubles;) and the Austrian government, have survived at once capital and credit, is eking out the income required to meet a reckless expenditure by begging and stealing throughout its provinces in a degree which renders its total realizations incomputable, but still immense. Prussia, however, one of the most prominent of the military empires of Europe, professes to pay its way respectably for something over £20,000,000. The interest on the public debt of Prussia does not exceed 14,000,000 thalers, or £2,100,000 of our money; the Prussian national debt not exceeding £60,000,000. Prussia is the most fortunate State in Europe in regard to its debt, and the Prussian army is maintained at a cost of only 30,000,000 thalers a year, or less than £5,000,000.

He who never gives advice and he who never takes it are alike unworthy of friendship.

The Seat of the Affections.—There is no authority in history, metaphysics, or physiology, for placing the head-quarters of Cupid in the heart. It may, for aught we know to the contrary, be in the lungs or the liver. One of our homœopathists says that Love is a creature of the stomach, and depends upon the gastric juices for support. And yet if a lover should say to the object of his affections, "Miss, permit me to lay my stomach and fortune at your feet," she would think it an odd way of popping the question. It is, however, a palpable absurdity to represent the hearts of lovers as in flames, or transpierced with barbed arrows, because it is manifest that a person with the vital organ in a state of combustion or on a skewer, would be at the point of death, and therefore incapable of courting. And yet, if this popular fiction be discarded, what becomes of the valentine trade?

A Wife's Influence.—A married man falling into misfortune, is more apt to retrieve his situation in the world than a single one, chiefly because his spirits are soothed and retrieved by domestic endearments, and his self-respect kept alive by finding that although all abroad be darkness and humiliation, yet there is a little world of love at home over which he is a monarch.

It is a great blunder in the pursuit of happiness not to know when we have got it; that is, not to be content with a reasonable and possible measure of it.

The following is at present the population of the Kingdom of Italy: Piedmont, 3,815,637 inhabitants; Sardinia, (the island,) 573,115; Lombardy, 2,771,647; Modena, 609,139; Parma, 508,784; Tuscany, 1,779,338; The Legations, the Marches, and Umbria, 1,960,360; Naples, 6,843,365; Sicily, 2,231,020; total, 21,092,395 inhabitants.

The Coal Supply to the Metropolis.—The quantity of coal and coke carried into the metropolis for the year ending January 1st, shows an enormous increase on preceding years. No less than 1,477,545 tons 16 cwt. have been conveyed from various parts of England to London by the railways having access thereto. For the year the seaborne importation has been 3,573,377 tons, brought by 11,226 ships, against 3,229,170 tons by 10,693 ships, being an increase of 274,207 tons and 533 ships.

Mechanical or automatic baking machines on a small scale are introduced into England. A sack of flour can be prepared for use in a few minutes. The sponge and dough require an extra workman and the whole affair is easily managed by one person. It is coming rapidly into use in public institutions and government military stations.

Honor women! They scatter heavenly roses on the path of our earthly life; they weave the happy bonds of love; and beneath the modest veil of the graces, they nourish with a sacred hand the immortal flower of noble sentiments.

General Count Tascher De La Pagerie, a relation of the Emperor Napoleon through the Empress Josephine, and Grand Master of the Household of the Empress, died in Paris on Sunday, aged upwards of eighty.